

Master Thesis, Spring 2019

Cand.merc.fsm, Copenhagen Business School

Valuation of



Coloplast

A strategic and financial analysis and DCF Valuation

Maria Thalmann

Studienr.: 82029

STU: 172,468

Pages: 75

Supervisor: Rune Dalgaard

Date for Hand in: May 14, 2019

Abstract

This thesis aims to estimate the value of Coloplast A/S on November 1, 2018 from an outsider perspective based on strategic and financial analyses and a DCF valuation. Additionally, it investigates how forecasted value drivers and valuation assumptions affects the estimated value and help explain the difference between this and the actual market value.

A PEST analysis, Porter's Five Forces analysis, Value Chain analysis and SWOT analysis are performed in order to identify key opportunities, threats, strength and weaknesses that determine Coloplast's future prospect. Moreover, a growth and common-size analysis as well as a Dupont profitability analysis and an examination of the impact of a new high-volume production facility in Costa Rica is performed. This includes extensive benchmarking with competitors.

Key growth, cost, investment and financing value drivers are forecasted based on the strategic and financial analysis resulting in the forecasted income statement, balance sheet and cash flow statement for Coloplast. These are, together with a mainly theoretically estimated WACC, used in the DCF valuation to estimate the value of Coloplast. This estimated value is DKK 639.2 per share, which is DKK 46.8 higher than the actual market value of DKK 592.4 on November 1, 2018.

An assessment of the forecast and valuation, including a multiple analysis, finds that the forecast is not unrealistic based on key value drivers, margins and ratios, when considering the strategic and financial analyses and the multiples relative to competitors. Further, a sensitivity analysis and scenario analyses find that investors might not believe Coloplast to have as high growth rates or EBITDA margins due to the lower actual value. Nevertheless, a more likely scenario is that the estimated WACC is too low. This could, in part, be explained by the announcement of a new CEO, which might increase the required return on equity for investors. The too low WACC estimate, indicates that the forecast assumptions are actually too pessimistic as using a higher WACC, estimated by Coloplast or analysts, results in an estimated value below the actual market value. Subsequently, investors might expect higher growth rates or EBITDA margins than this thesis but also a higher WACC.

Table of Contents

1. Introduction.....	5
2. Methodology	6
2.1 Research Question.....	6
2.2 Data Utilization and Analysis	7
2.3 Delimitations	8
3. Scientific Framework	8
3.1 Strategic analysis	9
3.2 Financial Analysis.....	10
3.3 Forecasting	12
3.4 Weighted Average Cost of Capital.....	12
3.5 Valuation.....	13
3.6 Evaluation of Forecast and Valuation.....	13
4. Company Description	13
4.1 Business Areas	14
4.2 Geographic Markets and Manufacturing Setup.....	15
4.3 LEAD20 Strategy	16
5. Strategic Analysis.....	17
5.1 External Macro Environment: PEST Analysis.....	17
5.2 External Industry Environment: Porters Five Forces.....	23
5.3 Internal Analysis: Value Chain Analysis	29
5.4 SWOT analysis.....	35
6. Financial Analysis.....	36
6.1 Reformulate Financial statements	36
6.2 Growth & Common-Size Analysis.....	38
6.3 Profitability Analysis	41
6.4 Production move to Costa Rica	43
6.5 Subconclusion.....	45
7. Forecasting	46
7.1 Growth Drivers: Revenue Growth	46
7.2 Cost Drivers.....	47
7.3 Investment Drivers	49

7.4 Financing Drivers	50
7.5 Subconclusion.....	50
8. Valuation.....	50
8.1 WACC.....	50
8.2 Outstanding shares.....	53
8.3 DCF Valuation	53
9. Discussion	53
9.1 Assessment of the Forecast and Valuation	54
9.2. Sensitivity analysis	58
9.3 Scenario Analysis	58
9.4 Subconclusion.....	62
10. Conclusion	63
11. Further Research	64
Bibliography.....	65
Appendices	76

1. Introduction

“An economist is an expert who will know tomorrow why the things he predicted yesterday did not happen today” (Flyvbjerg, 2001, p. 44)

Economists, investors and managers continuously estimate the value of companies in order to examine their prospects relative to the market values. This is done in order to make qualified decisions to maximize their or their shareholder's profit, whether this involves investigating how to improve relative to other companies, implementing new strategies or changing the stock portfolio. However, as the quote above suggests, the valuations rarely reflect the actual market value of the company the next day, and if they do, this is most likely not because all the assumptions are correct, but because the faulty assumptions cancel each other out. Notwithstanding, conducting these investigations and valuations as well as comparisons with the actual market value and values of competitors, provide important information which educates these players, allowing them to make smarter and more qualified decisions. Furthermore, the necessary analyses and forecast that need to be undertaken to make a qualified valuation, forces these players to examine and consider both the external environment in which a company operates and how this limits or liberates the company, and the internal resources and capabilities, which allows a company to be and stay competitive in the long run. Subsequently, these valuations as well as the analyses and research performed to conduct them, hold much value for companies as well as investors and researcher in the market.

Coloplast A/S (hereafter Coloplast) is a global, medical supplies and devices company headquartered in Humlebæk, Denmark, with sales subsidiaries in more than 40 countries (Coloplast, Corporate Responsibility Report 2017/18, 2018). It produces and sells products within the business areas of ostomy care, continence care, interventional urology and wound & skin care. Coloplast currently employs about 12,000 employees world-wide, had, in 2017/18 a revenue of DKK 16,449m (Coloplast, Annual Report 2017-18, 2018) and have experienced above market-growth for many years. A valuation of Coloplast could, therefore, highlight interesting factors that have led to this high growth, or identify a different trend in the future. Moreover, a comparison to the actual value of Coloplast, could show what the market actually thinks and expects of Coloplast's future prospects. Furthermore, as Coloplast is one of Denmark's largest companies, a valuation as well as analyses of its environment and ability to compete in the market, is relevant for the whole country. For example the decision to move the high-volume production sites from Denmark to Hungary, rendered many Danish people without a job (Sand, 2019). Therefore, Coloplast is an interesting case company for this valuation.

This thesis aims to estimate the value of Coloplast A/S on November 1, 2018, from an outsider perspective, based on strategic and financial analyses and a DCF valuation. Moreover, it investigates how forecasted value drivers and valuation assumptions affects the estimated value and helps explain the difference between this and the actual market value. To achieve this, this thesis will, first, introduce the research perspective and approach following an introduction of the scientific framework and Coloplast. Second, the strategic analysis consisting of an external analysis of the macro environment (PEST analysis) and industry environment (Porter's Five Forces Framework) as well as an internal analysis (Resources & Capabilities and Value Chain Analysis), though from an outsider perspective, will be conducted. Subsequently, the financial analysis of Coloplast will be undertaken, including comprehensive benchmarking with competitors. Fourth, based on these strategic and financial

analyses, the forecast that will lay the foundation for valuation is established. Fifth, the valuation of Coloplast will be conducted, including a section estimating and calculating the Weighted Average Cost of Capital. Sixth, a discussion of the estimated value compared to the actual value will be performed, through a multiple analysis, sensitivity analysis and scenario analysis. Lastly, a conclusion will resolve the research question followed by limitations and further research.

2. Methodology

This thesis aims to achieve scientific objectivity through validity not reliability (Olsen & Pedersen, 2005; Pauwels & Matthyssens, 2005). The stock price of a company is seen as the one true value of a company at any given time, and valuations that deviate from this value are subjectively influenced attempts to understand this actual value. Achieving scientific objectivity through validity, is, however, not the same as being completely objective, as the analyses and results will always be colored by the interpreter (Olsen & Pedersen, 2005). Nonetheless, the aim is visibly to base the analyses on publicly available sources and reasoning, in such that readers can follow the argumentation and thereby understand and validate the process and results.

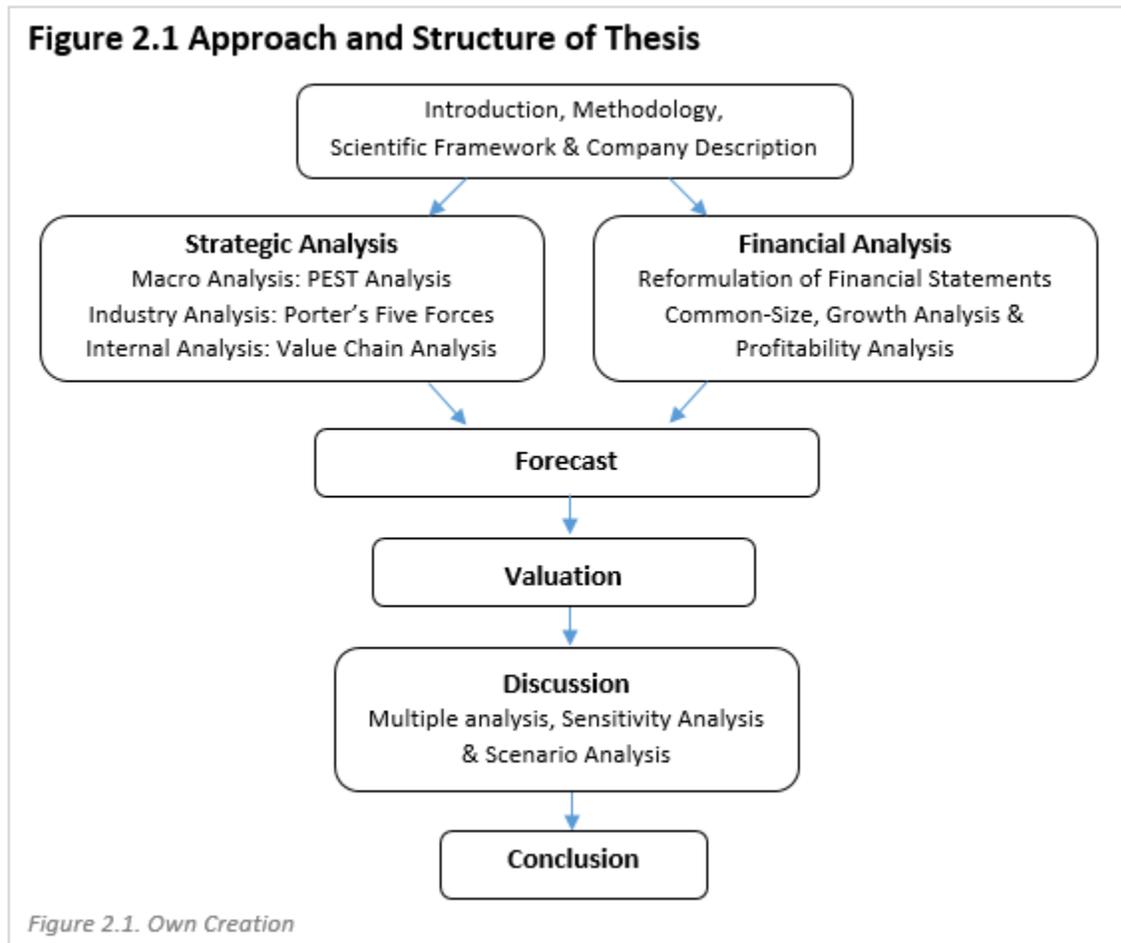
2.1 Research Question

Based on strategic and financial analyses and a DCF valuation from an outsider perspective, what is the estimated market value of Coloplast A/S on November 1st 2018? To what extent do variations of forecasted value drivers or valuation assumptions influence the estimated value and how can these help explain the difference between this and the actual market value?

Subsequently, this thesis will analyze Coloplast as an outsider from both a strategic and financial perspective thereby identifying external and internal developments that can help forecast and, therefore, value Coloplast. Following the valuation, a discussion will compare the estimated and actual value and identify a number of possible developments and reasons that could help explain the difference between the values and, further, shed light on the usability and validity of the forecast and valuation.

Correspondingly, this thesis takes both a qualitative and quantitative approach in investigating Coloplast. The qualitative approach is the strategic analysis, which concentrates on the quality of the company and how it is influenced by the market and global environment. The quantitative approach focuses instead on the company's financial statements as well as those of competitors, introduced in the financial analysis. While one could settle for using one of these approaches, triangulation of methods, i.e. using multiple approaches, is preferable, as it allows for better support for forecasting, resulting in more comprehensive analysis result, as well as eases validation for readers (Ghauri, 2005). Moreover, looking at Coloplast from both a strategic and financial perspective enables this thesis to look at all the factors influencing the valuation: *"The whole is related to each of the parts, and each of the parts is related to the other parts and to the whole."* (Crowe & Doran, 1992, p. 205).

Accordingly, the approach and structure of this thesis is presented in Figure 2.1. A more detailed description of the items in the figure, the associated theories and analyses methods applied, are explained in the Strategic Framework below.



2.2 Data Utilization and Analysis

This thesis analyzes Coloplast from an outsider perspective, wherefore a mixture of publicly available primary, secondary and tertiary data sources are used. It is attempted to use reliable and multiple data sources to support an argument, but in some cases only limited information is publicly available, why this might not always be possible. Using these different types of data sources and using multiple data sources for different arguments, provides a more stable foundation for the analyses. Here, using non-publicly available data or collecting primary data from Coloplast and its competitors, could have provided a more comprehensive view, strengthening the analyses and, therefore, the valuation. However, as only publicly available data is supposed to be reflected in the actual value of Coloplast, collecting primary data could result in subjectively influenced data, wherefore, and due to the limited time and scope of this thesis, this has not been done.

The strategic and financial analyses are based on Petersen & Plenborg's (2012) approach. Notwithstanding, a greater focus has been laid on the strategic analysis in this thesis, as context is deemed as essential (Flyvbjerg, 2001). Further, only those analyses of the financial data that are important and relevant for the valuation have

been included in thesis. However, all have been considered. The theories and methods of analysis will, as stated above, be explained in the scientific framework. Nonetheless, it is expected that readers already have knowledge of these, wherefore they will only be generally introduced.

Throughout the strategic, but more significantly, the financial analyses, benchmarking with main competitors will be used in a discussion of key factors, accounting items and ratios. These will, further, be used when forecasting the financial statements for the analyses and discussing the valuation outcome.

2.3 Delimitations

This thesis takes, as mentioned above, an external approach using only publicly available data not including industry and other reports which require user payment. Subsequently, the analyses and following valuation are influenced by this: Firstly, the internal strategic analysis of Coloplast is very limited as the theories this analysis is based on are created for internal use. Secondly, it would benefit the valuation if the historical and forecasted statement items could be separated based on Coloplast's business areas. However, this information is only available for the revenue and will, therefore, not be done. In the strategic analysis, the business areas have been highlighted when possible. Lastly, the comparison with competitors is influenced by limited accessibility to financial statements and other data as well as limited space. In the strategic analysis competitors are mentioned when information is available and deemed as improving the analysis and, in the financial analysis only those main competitors with available financial statements have been included. This will be further elaborated in the financial analysis.

As Coloplast is a global company that operates in many different countries, exchange rates have a significant impact on its revenue (Appendix 1). Nonetheless, this thesis will not discuss exchange rates in the strategic analysis nor include their impact in the forecast and valuation, as they follow a random walk and, therefore, cannot be predicted (Mussa, 1979). Subsequently, all future estimates are in DKK and it is assumed that 1% growth in local currencies corresponds to a 1% increase in DKK. Based on this same line of argumentation, developments in oil prices (Appendix 2) and interest rates are also excluded from the analysis and valuation. All of these would, usually have been included as an economic factor in the PEST analysis.

Lastly, the date of the valuation is set to be the 1st of November 2018, as this is the date the annual report for 2017/18 was presented (Coloplast, Annual Reports, n.d.). Therefore, information from after this cut-off date is not used in the forecast and subsequent valuation. Nonetheless, some information has been used in the strategic analysis to support argumentation. For competitors, the financial data has been used for all of 2018, as their financial year runs until the 31st of December. As explained in the financial analysis, changing the financial data to reflect the same financial year as that of Coloplast is deemed to create more confusion than it will help the analysis.

3. Scientific Framework

This section will introduce the theories and methods used for the strategic and financial analyses, the forecast and valuation as well as the discussion of the estimated and actual value.

3.1 Strategic analysis

In economic theory, a company's main goal is to create value for its owners by maximizing economic profits in the long run (Grant, Contemporary Strategy Analysis, 2016). Consequently, strategy is the mean to which the company reaches that goal by matching its internal resources and capabilities with the opportunities and threats present in the external environment (Grant, Contemporary Strategy Analysis, 2016; Jurevicius, 2013).. The external environment analysis consists of an analysis of industry factors (Porter's Five Forces) and an analysis of the macro factors (PEST Analysis), and the internal analysis consists of an identification of capabilities in the different levels of the value chain (Porter's Value Chain Analysis). Following these, the SWOT analysis is introduced. This is used as a summation of the main opportunities, threats, strengths and weaknesses identified by the internal and external analyses.

3.1.1 External Macro Environment

To understand Coloplast's external macro environment, the PEST analysis is employed. PEST is a simple analysis that identifies the key external macro level factors that might affect a company (Jurevicius, 2013). PEST stands for Political, Economic, Socio-cultural and Technological factors (MindTools, PEST Analysis - Identifying the "Big Picture" Opportunities and Threats, 2018). However, many other variations exist which include other factors such as Legal, Ethical or Demographic (Jurevicius, 2013). However, these additional factors can also simply be included in the original PEST analysis. In such, political factors will include all legislation and legal matters and Socio-cultural factors will include demographic developments.

3.1.2 External Industry Environment

Porter's Five Forces Framework is the most widely used for analyzing the industry environment (Appendix 3). Here, the profitability of an industry is determined by five sources of competitive pressure: Industry rivalry, supplier power, threat of entry, substitute competition and buyer power (Grant, Contemporary Strategy Analysis, 2016). The structure of the industry, based on the strength of the five forces, determines how the economic value, which is created in the industry, is divided¹ (Porter, The Five Competitive Forces That Shape Strategy, 2008). While Porter recommends conducting field research to make a comprehensive analysis (Porter, Appendix B: How to Conduct an Industry analysis, 1980), this thesis, as explained previously, only bases the analysis on external, publicly available data.

The framework has been subject to much critique, most noteworthy it has been argued to be a static model describing dynamic industries (Investopedia, The Pitfalls of Porter's 5 Forces, 2018). Nonetheless, Porter (2008) argues that his framework should not only be used to describe a certain moment in time, but rather that it should identify the most significant aspects of the competitive environment in such that, amongst others, changes in the industry can be anticipated and exploited (Porter, The Five Competitive Forces That Shape Strategy, 2008).

3.1.3 Internal Analysis

Internally, a company possesses a unique collection of resources and capabilities. By exploiting these and differences compared with competitors, competitive advantage and, therefore, profitability can be achieved (Grant, Contemporary Strategy Analysis, 2013). Competitive advantage is understood as: *"a firm's current or*

¹ How much is retained by companies versus bargained away by customers and suppliers, limited by substitutes, or constrained by potential new entrants (Porter, The Five Competitive Forces That Shape Strategy, 2008).

future ability to earn a consistent higher rate of profit than its competitors in the marketplace” (Grant, Contemporary Strategy Analysis, 2016, p. 211). Our primary interest is identifying those capabilities that provide the basis for competitive advantage (Grant, Contemporary Strategy Analysis, 2013). Different approaches to identify them exist, like the functional classification approach or 7-S Framework (Grant, Contemporary Strategy Analysis, 2013; McKinsey, 2008). Nonetheless, this thesis will use Porter’s Value Chain Model (Appendix 4), which is based on the idea that all companies perform a number of activities, primary and supporting, which, combined, add value. Not every activity necessarily adds value, but the model allows you to look at and identify those that do (Porter, Competitive Advantage, 1985). This is why this model has been chosen.

Similar to the Porter’s Five Forces Model the analysis can accommodate expected future developments to some extent, based on current and previous developments.

3.1.4 SWOT analysis

The SWOT analysis is a framework used to evaluate a company’s competitive position. It is also called an internal-external analysis as it looks at strengths and weaknesses, which are internally in the company, and at opportunities and threats, which are externally in the environment (MindTools, SWOT Analysis, n.d.; Investopedia, SWOT Analysis, 2019). In this thesis, the SWOT Analysis is used as a summation of the other strategic analyses, in such that the main areas of interest are clearly visible and can be used together with the financial analysis to make a good forecast and valuation.

3.2 Financial Analysis

The financial analysis aims to calculate important financial items and ratios and look at their development over time in order to lay the foundation for the following forecast and valuation. To achieve this, the financial statements have to be reformulated to reflect operating and financing activities, which need to be consistent over time and across firms (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012). Based on the analytical statements a common-size and growth analysis are conducted, as well as a profitability analysis. This is done in order to evaluate the company’s historical performance. Comprehensive benchmarking with main competitors will be used to discuss and evaluate the resulting financial measures and ratios.

3.2.1 Reformulating the financial statements

The financial statements need to be reformulated to reflect operating and financing activities as this provides us with better knowledge of different sources of value creation in a firm (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012). Further, it allows us to calculate unblurred key ratios for analyses as well as comparison with competitors.

The analytical income statement provides us with the operating earnings, which are a key performance measure showing the firm’s profit from its core business, regardless of how it is financed. This is identified through the measures: Earnings Before Income Tax, Depreciation and Amortization (EBITDA), Earnings Before Income Tax (EBIT) and Net Operation Income After Tax (NOPAT) (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012). The latter is not reported on financial statements, wherefore it is necessary to add back the tax advantage from net financial expenses to EBIT in order to get to NOPAT. This is

due to the fact that financial expenses are tax deductible (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012). Moreover, we get the total net financial expenses.

The analytical balance sheets provides us with the combined investment in a company's operating activities: Invested Capital (IC). IC equals the sum of operating assets less operating liabilities, as the latter reduce the need for interest-bearing debt, or the sum of equity and net interest-bearing debt (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012). Subsequently, this calculation requires that assets and liabilities are grouped into operating and financing activities, as explained above. These, further, need to reflect the classification in the income statement. The analytical balance sheet and the resulting IC are important in calculating and evaluating a company's profitability as well as creating forecasted statements.

3.2.2 Financial Analyses

Three financial analyses of the analytical financial data will be undertaken. The Common-size and Growth analyses are used to look into some of the financial items, comparing them to main competitors. Common-size takes the item as a percentage of revenue each year, and the growth analysis calculates the growth of each item from one year to the next (Petersen & Plenborg, Profitability Analysis, 2012; Petersen & Plenborg, Growth Analysis, 2012). These analyses will result in a comprehensive view of how Coloplast is doing relative to competitors and lay the foundation for the profitability analysis.

The profitability analysis follows the Du Pont Model (Appendix 5), where Return on Equity (ROE) is the profitability measure, which is calculated as depicted in Equation 1. Profitability is essential for a company's survival as well as ensuring satisfactory returns to its shareholders (Petersen & Plenborg, Profitability Analysis, 2012). ROE is based on the Return on Invested Capital (ROIC) after tax, which, again, is based on the profit margin (PM) and turnover rate of Invested Capital (TRIC), as well as on the Net Borrowing Cost (NBC) and the financial leverage. Each of these is introduced below.

$$ROE = ROIC + (ROIC - NBC) * \frac{NIBD}{BVE}$$

Equation 1 (Petersen & Plenborg, Profitability Analysis, 2012)

ROIC is the profitability measure for operating activities that expresses the return on capital invested in net operating assets. Moreover, it shows whether this profitability is driven better by the revenue and expense relation, described by PM, or an improved capital utilization, expressed through TRIC, as depicted in Equation 2 (Petersen & Plenborg, Profitability Analysis, 2012). TRIC is calculated based on both income statement and balance sheet items, wherefore average values are used in the calculation.

$$ROIC = \frac{NOPAT}{IC} * 100 = PM * TRIC = \left(\frac{NOPAT}{Net Revenues} * 100 \right) * \left(\frac{Net Revenues}{IC} \right)$$

Equation 2 (Petersen & Plenborg, Profitability Analysis, 2012)

NBC and financial leverage bring the financial aspect into the ROE calculation, and are depicted in Equations 3 and 4. Like TRIC, NBC is calculated using average values. If the spread, the difference between ROIC and NBC, is positive, an increase in the financial leverage will improve ROE. Nonetheless, if the spread is negative an increase in the financial leverage will have the opposite effect (Petersen & Plenborg, Profitability Analysis, 2012). Subsequently, a higher financial leverage results in higher variation in ROE, as risk increases with financial leverage (Petersen & Plenborg, Profitability Analysis, 2012).

$$NBC = \frac{\text{Net Financial Expenses After Tax}}{\text{Net Interest Bearing Debt}} * 100$$

Equation 3 (Petersen & Plenborg, Profitability Analysis, 2012)

$$\text{Financial Leverage} = \frac{NIBD}{BVE}$$

Equation 4 (Petersen & Plenborg, Profitability Analysis, 2012)

3.3 Forecasting

This thesis takes a sales-driven approach to forecasting, where each accounting item is driven by the expected level of revenues (Petersen & Plenborg, Forecasting, 2012). It is possible to forecast all items from the financial statements, however, when forecasting long-term, a simpler approach is often preferable, as information in the future tends to be less accurate. Therefore, only key growth, cost, investment and financing drivers will be forecasted to lay the foundation for the valuation (Petersen & Plenborg, Forecasting, 2012). These need to be forecasted in an explicit forecast period until they reach a steady state, called the terminal period.

Internal knowledge would result in a more refined forecast, however, as this thesis takes an outsider perspective, the forecast is made solely on available public information presented in the strategic and financial analysis.

3.4 Weighted Average Cost of Capital

WACC consists of four elements that need to be estimated, as depicted in Equation 5 (Petersen & Plenborg, Cost of Capital, 2012).

$$WACC = \frac{NIBD}{(NIBD + E)} * r_d * (1 - t) + \frac{E}{(NIBD + E)} * r_e$$

Equation 5 (Petersen & Plenborg, Cost of Capital, 2012)

First, the tax rate used to calculate the tax advantage of debt, which is forecasted together with the financial statements. Second, the return on equity (r_e) which is calculated using the Capital Asset Pricing Model (CAPM) depicted in Equation 6. The CAPM assumes that investors can diversify away all unsystematic risk and, therefore, only pay for systematic risk (β) (Petersen & Plenborg, Cost of Capital, 2012). The CAPM consists of three factors: a) The risk-free rate, which expresses how much an investor can earn without incurring any risk. b) The systematic risk (β), which measures the co-variance between the company-specific return and market return. If $\beta = 0$ the investment is risk free, if $\beta < 1$ the stock fluctuates less than the market, if $\beta > 1$ it fluctuates more than the market and if $\beta = 1$ the stock fluctuates the same as the market (Petersen & Plenborg, Cost of Capital, 2012). c) The estimation of the market risk premium ($r_m - r_f$), which is the difference between the market returns and returns from risk-free investments (Petersen & Plenborg, Cost of Capital, 2012).

$$r_e = r_f + \beta_e * (r_m - r_f)$$

Equation 6 (Petersen & Plenborg, Cost of Capital, 2012)

Third, the required return on NIBD (r_d) needs to be estimated as depicted in Equation 7. Here, the credit spread (r_s) is the risk premium on debt. The safer a company i.e the lower the credit rating, the lower the credit spread (Petersen & Plenborg, Cost of Capital, 2012). Lastly, the capital structure needs to be estimated based on market values. It can be found through the iteration procedure; using the book values of Equity and NIBD in a DCF valuation to find a new capital structure, which should then be used in a new DCF valuation resulting in a new capital structure and so on, until the capital structure calculated is the same that was used. Then the resulting capital structure can be compared with the industry average (Minasyan, 2013).

$$r_d = (r_f + r_s) * (1 - t)$$

Equation 7 (Petersen & Plenborg, Cost of Capital, 2012)

3.5 Valuation

The valuation of Coloplast uses the enterprise value approach, which is a discounted cash flow model (DCF), taking the time value of money and risk into an account (Petersen & Plenborg, Valuation, 2012). The value of Coloplast is, therefore, calculated using the two-stage model depicted in Equation 8, where the first part is the sum of present values (PV) for all forecasted free cash flows to the firm (FCFF) for the forecast period and the latter is the PV of the terminal period FCFF in perpetuity. WACC is the weighted average cost of capital explained above. The DCF approach assumes that only the FCFF and WACC influence the market value of a company and that the company will grow at its long-term growth rate for eternity. These assumptions are necessary to create a simple and practical model that does not require one to forecast a company's cash flows for eternity (Petersen & Plenborg, Valuation, 2012).

$$Enterprise\ Value_0 = \sum_{t=1}^n \frac{FCFF_t}{(1 + WACC)^t} + \frac{FCFF_{n+1}}{WACC - g} * \frac{1}{(1 + WACC)^n}$$

Equation 7 (Petersen & Plenborg, Cost of Capital, 2012)

3.6 Evaluation of Forecast and Valuation

The valuation will be assessed and discussed based on three different analyses. First, the multiple analyses allows us to compare Coloplast's value with those of peers through multiples (Petersen & Plenborg, Valuation, 2012). This is done in order to validate the forecast and DCF-valuation by comparing it to the multiples of the main competitors. Therefore, the multiple analysis is not an alternative valuation, but rather a comparison of the already calculated value. To do this we use the EV/EBITDA multiple. The reason this multiple is chosen is the fact that Coloplast's main competitors are foreign and have quite distinct capital structures, which is excluded from the EBITDA. Moreover, the P/E multiple will be used in order to include income on the bottom line after tax (Petersen & Plenborg, Valuation, 2012). Second, a sensitivity analysis will be conducted in order to see how sensitive the estimated value is to small changes in some important value drivers such as the terminal growth rate or the WACC. Lastly, a scenario analysis will be conducted, introducing alternative scenarios that help illustrate and explain why the estimated value differs from the actual value.

4. Company Description

In 1954, Elise Sørensen conceived the idea of the first adhesive ostomy bag. Her hope was to ease her sister's life by minimizing the risk of leakage. By convincing Johanne and Aage Louis-Hansen of the geniality of her invention, the first adhesive ostomy bag was created. In 1957, Aage Louis-Hanses founded Coloplast A/S. Consequently, Coloplast's mission is to ease the life of people with intimate healthcare needs. (Coloplast, Coloplast.com, 2018). Today, Coloplast has become a global company with subsidiaries and production sites in many countries and sales on an international level. Moreover, the product portfolio has significantly increased and Coloplast is now structured into chronic care: ostomy care & continence care and non-chronic care: Urologi

& Wound and skin care (Coloplast, Coloplast.com, 2018). The business areas, the geographical markets and manufacturing setup as well as the company's current strategy, are presented below

4.1 Business Areas

4.1.1 Chronic Care

4.1.1.1 Ostomy Care

Patients operated for intestinal dysfunction due to disease (50-60% due to cancer), an accident or a congenital disorder have a stoma. Coloplast sells a variety of ostomy bags to help these patients empty the intestines, but the market for ostomy care products also includes accessory products such as the Brava® range (Coloplast, Annual Report 2017-18, 2018).

SenSura® Mio is Coloplast's most sold ostomy care product (Coloplast, Leading intimate healthcare H1 2017/18, 2018). It is a modern ostomy bag that fits individual body shapes and stays discreet due to the neutral gray textile (Coloplast, So you can be you - Corporate Brochure 2017/18, 2018). In 2018 a new version, Sensura Mio Convex, was introduced to the market, which has an adaptive convex baseplate (Coloplast, Leading intimate healthcare H1 2017/18, 2018; Coloplast, So you can be you - Corporate Brochure 2017/18, 2018).

4.1.1.2 Continence Care

Continence care focuses on two customer groups. The first are unable to empty their bladder or bowel and, therefore, use an intermittent catheter. Coloplasts products span from the full range from uncoated catheters to discreet, compact and coated catheters (Coloplast, Annual Report 2017-18, 2018). The main users are people with spinal cord injuries, mainly due to accidents. Other users are people with multiple sclerosis or with congenital spina bifida (Coloplast, Annual Report 2017-18, 2018).

The second customer group, is people suffering from faecal or urinary incontinence. For the latter, Coloplast offers a wide range of urine bags and urinalsheaths. The main user is the elderly population (Coloplast, Annual Report 2017-18, 2018). To people suffering from bowel or sphincter muscle dysfunction Coloplast offers an anal irrigation system. Here the main user has a spinal cord injury (Coloplast, Annual Report 2017-18, 2018).

SpeediCath® Flex is Coloplast's most sold Continence care product (Coloplast, Leading intimate healthcare H1 2017/18, 2018). It is a soft catheter with a flexible tip, specially designed for men (Coloplast, So you can be you - Corporate Brochure 2017/18, 2018).

4.1.2 Non-Chronic Care

4.1.2.1 Interventional Urology

Interventional urology involves diseases and symptoms of the urinary system, pelvic floor prolapse and the male reproductive system, such as urinary incontinence, kidney stones, enlarged prostate and impotence (Coloplast, Annual Report 2017-18, 2018). Coloplast offers and markets a broad range of products in connection with urological and gynecological surgery procedures, including implants and disposable articles for use before, during and after surgery (Coloplast, Annual Report 2017-18, 2018).

Titan® is Coloplast's most sold Interventional Urology Care product. It is an inflatable penile prosthesis made from silicone and Bioflex® (Coloplast, Leading intimate healthcare H1 2017/18, 2018).

4.1.2.2 Wound and Skin Care

Skin care consists of products such as disinfectant liquids or creams, which are used to treat the skin and to clean wounds. Moreover, Coloplast offers a textile, which is placed in a skin fold to absorb moisture and thereby treating or preventing skin fold problems such as fungal infections, damaged skin or odour nuisance (InterDry®) (Coloplast, Annual Report 2017-18, 2018).

Wound Care caters to people who are treated for exuding or chronic wounds, namely leg ulcers, pressure ulcers, and diabetic foot ulcers (Coloplast, Annual Report 2017-18, 2018). For these wounds, Coloplast offers advanced foam dressings (Biatain®) and hydrocolloid dressings (Comfeel®).

Biatain® Silicone are Coloplast’s most sold wound and skin care products (Coloplast, Leading intimate healthcare H1 2017/18, 2018). They are soft and flexible foam dressings with a 3DFit™ Technology that conforms to the wound bed for optimal healing conditions of chronic and acute wounds (Coloplast, So you can be you - Corporate Brochure 2017/18, 2018).

4.2 Geographic Markets and Manufacturing Setup

Coloplast separates its markets into three geographical categories: European markets, Other Developed Markets and Emerging Markets. These, and Coloplast’s manufacturing setup, will be introduced in the following and an overview can be seen in table 4.1.

Table 4.1 – Key geographic markets and manufacturing setup			
European Markets	Other Developed Markets	Emerging Markets	Manufacturing Sites
Denmark	The US	China	Denmark
The UK & Ireland	Australia	India	France
France	Japan	Russia	The US
Germany	Canada	South Korea	Hungary
		Argentina	China
		Poland	(Costa Rica)
		Israel	
		South Africa	
		Greece	

Own Creation - (Coloplast, Annual Report 2017-18, 2018; Coloplast, Annual Report 2012/13, 2013; Villumsen, Introduction to Region Europe Chronic Care, 2018; Villumsen, Emerging market update, 2018; Veome, 2016)

4.2.1 European Markets

European Markets covers what we know of Europe excluding the Eastern European countries and Greece (Figure 4 in Appendix 6). Coloplast’s headquarters are in Denmark, it has subsidiaries in 14 countries in European Markets, services more than 10,000 Hospitals, has more than 1,250 employees and is the undisputed market leader here with a 40-50% market share (Villumsen, Introduction to Region Europe Chronic Care, 2018). The key investment areas here, are the UK, Germany and France (Villumsen, Introduction to Region Europe Chronic Care, 2018).

4.2.2 Other developed markets

Other developed markets include Canada, Japan, Australia and the US, of which the latter three have been in focus over the last years (Coloplast, Annual Report 2012/13, 2013; Coloplast, Annual Report 2017-18, 2018; Rasmussen, 2016). Australia and Japan have had higher growth rates than previously and the US has, as the world

leader of healthcare spending, been the main driver of growth in this market and is the number one growth opportunity in Coloplast (Varma, 2018; Veome, 2016).

4.2.3 Emerging markets

Emerging Markets is a large market consisting of over 80% of the world's population spread across four continents (Figure 5 in Appendix 6). Coloplast has sales in more than 70 countries with its own sales force present in 24 markets. Growth is, especially, driven by China and other, smaller, markets such as the Middle East (Coloplast, Annual Report 2017-18, 2018). Moreover, China, India, Russia, South Korea, Argentina, Poland, Israel & South Africa have been the focus of investment from 2015/16 to 2017/18 (Villumsen, Emerging market update, 2018).

3.2.4 Manufacturing Setup

Coloplast produces over 70% of its products in Hungary, 18% in China, 6% in the US & France and only 4% in Denmark (Coloplast, Leading intimate healthcare H1 2017/18, 2018). This consists of high volume production in Hungary and China, specialized production in the US and France and two innovation & competency centers in Denmark (Coloplast, Leading intimate healthcare H1 2017/18, 2018). Moreover, a plot for the next high volume production facility in Costa Rica has been acquired and is planned to be finished by 2020 (Coloplast, Annual Report 2017-18, 2018).

4.3 LEAD20 Strategy

Coloplast's current strategy is the LEAD20 strategy, which runs until FY2019/20 (Coloplast, Annual Report 2017-18, 2018). It targets four main themes. First, a unique user-focused market approach is taken. Within ostomy and continence care, Coloplast aims at becoming a user-oriented medtech company by interacting directly with the user, through direct sales in the top five markets, the Coloplast Care program, and the Coloplast Professional program. These will be further discussed in the strategic analysis. In wound care, standards for advanced wound care are shaped through wound assessment tools. And, in Interventional urology, the focus is on building on and understanding the users needs through partnerships with physicians (Coloplast, Annual Report 2017-18, 2018). Second, the LEAD20 strategy works towards superior products and innovation. In ostomy care, Coloplast's new products have reduced leakage. In continence care the focus is on reducing the burden of bladder management and urinary infection. In Wound care Coloplast's intents to reduce the users's days with wounds and, in interventional urology, the product portfolio will be broadened (Coloplast, Annual Report 2017-18, 2018). This focus of the LEAD20 strategy is essential to Coloplas's mission of 'Making life easier for people with intimate healthcare issues', wherefore Coloplast has increased its investment in research and development (R&D) from 3 to app. 4% of revenues and intents to keep this level in the future (Coloplast, Annual Report 2017-18, 2018). The third theme of the LEAD20 strategy is unparalleled efficiency. This is achieved through ambitious global operations plans (Appendix 7) that, amongst others, have worked towards an improved company set up, enabling subsidiaries to focus efficiently on commercial priorities (Coloplast, Annual Report 2017-18, 2018). Last, the LEAD20 strategy focuses on strong leadership development, which is a key to supporting growth (Coloplast, Annual Report 2017-18, 2018).

Coloplast's long-term financial guidance for the LEAD20 strategy is annual organic growth of 7-9% (Coloplast, Annual Report 2017-18, 2018)) and a EBIT margin of more than 30% at constant exchange rates. The

company is prepared to invest up to 2% of its revenues in new growth initiatives under the new strategy, compared to 1% previously. Here, the focus is on the themes mentioned above, as well as geographic focus areas, including North America, the UK and selected growth markets (Coloplast, Annual Report 2017-18, 2018).

5. Strategic Analysis

The Strategic Analysis contains a PEST analysis that looks at the external environment, a Porter's Five Forces analysis that looks at the industry environment, and an internal analysis through Porter's Value Chain Model, as explained above. The key opportunities, threats, strengths and weaknesses identified in these, as well as their impact on the key value drivers, are presented in highlight boxes throughout the analyses as well as in the SWOT analysis as a summation.

5.1 External Macro Environment: PEST Analysis

The external macro environment in which Coloplast operates is investigated through the PEST Analysis to identify key opportunities and threats.

5.1.1 Political

Coloplast is subject to many different political and legal environments as it operates in a heavily regulated industry and in more than 40 countries (Coloplast, Corporate Responsibility Report 2017/18, 2018; Coloplast, Annual Report 2017-18, 2018). Subsequently, there are many political factors to consider. For example, the high wage level in Denmark reduces Coloplast's ability to compete, whereas the low tax rate in Denmark as well as the low wage level in Hungary increases its competitive stand (Coloplast, Annual Report 2017-18, 2018). The most influential political factors that affect Coloplast are healthcare reforms and government reimbursements, and legislation and compliance. These will be elaborated on below.

5.1.1.1 Healthcare Reforms and Government Reimbursement

Coloplast is subject to various local, state, federal, foreign and transnational laws and regulations such as the operating and security standards of the Drug Enforcement Administration (DEA), Department of Health and Human Services (DHHS) and European Union member states. Each of these operate under individual standards and are updated continuously. Non-compliance with these could have a negative effect on Coloplast's operations and financial position (MarketLine, Coloplast A/S, 2018; Coloplast, Annual Report 2017-18, 2018). Subsequently, it is expected that stringent government regulations result in increased operating costs in the future due to possible new requirements for, amongst others, packaging, quality and testing. Moreover, the marginal tax rate in Denmark could be affected, nonetheless, no indications for this exists, wherefore, this is not expected to occur.

Box 5.1

Threat: Stringent Government Regulations

Impact on value drivers: Higher operating costs

Changes in healthcare reforms that influence government reimbursement, have an, especially, large impact on Coloplast's operations, as most of Coloplast's products are eligible for reimbursements. Within Chronic Care,

for example, 90% of products are eligible for reimbursement (Coloplast, Annual Report 2017-18, 2018). Subsequently, a reduction of government reimbursement tends to push down the price, as Coloplast has to incur some of this reduction (Coloplast, Annual Report 2017-18, 2018). Coloplast estimates that these pricing and healthcare reforms have limited growth by up to 1% in FY2017/18 (Coloplast, Annual Report 2017-18, 2018).

Box 5.2

Threat: Healthcare Reforms and Less Government Reimbursement

Impact on value drivers: Significant negative impact on revenue growth

In the following, some of the regulations and healthcare reforms, as well as changes in these, that impact Coloplast significantly will be introduced based on Coloplast's three geographical markets.

European Markets

Coloplast is dependent on the development in European Markets, as they constitute more than 60% of revenue. Therefore, the company is extremely sensitive to economic, political, or social changes here (MarketLine, Coloplast A/S, 2018). Most regulations in this region are introduced by the European Union such as the new European Medical Device Regulations (MDR) that take effect on May 26, 2020 (Coloplast, Annual Report 2017-18, 2018).

Box 5.3

Threat: Heavy Reliance on European Markets

Impact on value drivers: More sensitive to positive and negative political, economic and social developments here.

More importantly, Coloplast is facing reimbursement pressure in multiple countries in European Markets. Stable reform pressure is evident in Germany and the Netherlands in chronic care, in Switzerland concerning wound and continence care and in the UK caused by efficiency saving under the NHS reform (Coloplast, Leading intimate healthcare H2 2017/18, 2018). Intensified reform pressure is experienced in France, where tariffs have been reduced continuously. In 2018 tariffs were decreased by further 1.2% compared to 2017 levels (Coloplast, Leading intimate healthcare H2 2017/18, 2018; Coloplast, Leading Intimate Healthcare 2011/12, 2012; French Ministry of Health, 2018). These reimbursement reductions will mainly affect Coloplast's Chronic Care business (Coloplast, Leading intimate healthcare H1 2017/18, 2018).

Other Developed Markets

Within Other Developed Markets the US constitutes an important focal area, as aforementioned. In 2010, the US began the implementation of the Affordable Care Act, which has decreased the uninsured rate by 43% (Obama, 2016) and has increased the coverage of governmental and private insurance (Obama, 2016; Draper, 2016). Overall, this is a positive development for Coloplast as more people will have access to its products (Arentoft, 2010). Nonetheless, a significant part of Coloplast's customers, i.e. the elderly, were already covered

by Medicare or Medi-aid, limiting the reforms impact on revenues (Arentoft, 2010). Furthermore, the Affordable Care Act imposed a tax of 2.4% on medical devices and equipment, which does not include ‘class one-equipment’ that constitute the majority of Coloplast’s products (Arentoft, 2010). Subsequently, Coloplast’s position relative to American competitors has been strengthened (Petersen M. H., 2013). Nevertheless, the Trump Administration is attacking the Affordable Care Act in hopes of revoking it. Their efforts have, until now, not succeeded, but continued efforts to undermine it are made, that could influence Coloplast’s sales negatively (Jost, 2018). Notwithstanding, Coloplast identifies the US as having a ‘stable reform pressure’ (Coloplast, Leading intimate healthcare H1 2017/18, 2018).

Emerging Markets

Increased availability of healthcare coverage within Emerging Markets affects Coloplast’s current and future sales positively (Coloplast, Annual Report 2017-18, 2018). The annual growth of the healthcare sector has been higher than the GDP growth² (Berrisford & Lopez, 2018) and is estimated to be 6.3% annually in the future, which is double the pace of developed markets (Berrisford & Lopez, 2018). The increase is a result of the increasing GDPs that lead to higher consumer spending, as healthcare coverage in emerging markets is largely up to the individual (Lane, 2017), and an increase in public healthcare spending due to legislation and reforms. Public healthcare spending in emerging markets rose by 20% in 2013 (Berrisford & Lopez, 2018) with China as the frontrunner (See Appendix 8 for more information)

Furthermore, the limited quality control and the fact that the majority of consumers pay for and choose products themselves, leads to the assumption that trust in a brand and the quality of its products plays an important role in consumer behavior. This indicates a strong position for Coloplast here, as it already consistently deliver quality products. Nevertheless, as the healthcare sector grows and becomes more regulated this importance of trust might decrease, which could have a negative impact on sales. This is, however, not expected to happen in the near future.

Box 5.4

Opportunity: Increasing Access to Healthcare in Emerging Markets

Impact on value drivers: Significant positive influence on revenue growth.
But possible stringent government regulations and healthcare reforms limiting the positive impact on revenue.

Moreover, Coloplast is facing macroeconomic and political pressure in Argentina, Brazil, Russia and Saudi Arabia, which are, however, classified as having a ‘stable reform environment’(Appendix 8). Further, China is a significant market in which, the Wound and Skin care market in particular is facing problems (Appendix 8). Lastly, Coloplast is facing intensifying reform pressure in Greece. Severe pricing reductions of approximately 25% have been introduced in October 2017. These affect all of Coloplast’s business areas, and have had a negative effect of up to DKK 100m in FY2017/18 (Coloplast, Financial outlook, 2018; Coloplast, Leading intimate healthcare H2

² From 1995 to 2013 the health care sector has grown by 9% in emerging markets, whereas the GDP only increased by 7% (Berrisford & Lopez, 2018)

2017/18, 2018). Within Wound Care, where Greece is one of Coloplast's largest targeted markets, two further reforms have been introduced (Ritzau Finans, Coloplast/dir: Ingen fast tidshorisont for fordoblingsmål i sårpleje, 2018). It is, therefore, expected that growth will be limited further in the future, though to a lesser extent than in FY2017/18.

5.1.1.2 Legislation and Compliance

The various legal environments can be unpredictable and politically motivated, wherefore Coloplast could face legal risks at any given time despite continuous efforts to be compliant (Coloplast, Annual Report 2017-18, 2018). This legal risk is especially high in the US, one of the world's most litigious countries³.

Coloplast has incurred many expenses, both in terms of large settlements of lawsuits and legal expenses in the US. In 2014, Coloplast was penalized \$600,000 as it did not live up to its promised hiring goal as part of a nearly \$3 million tax relief from the city of Minneapolis, where Coloplast built its US headquarters (Brandt, 2014). Further, in 2015, Coloplast, though never admitting any wrongdoing, paid a settlement of \$3.16 million in a case regarding federal kickback allegations (Sparrow, 2016; Department of Justice, 2016). Moreover, Coloplast is currently in the midst of the 'Transvaginal Mesh litigation', where more than 100,000 lawsuits against multiple manufactures, including Coloplast, have been brought in front of several state and federal courts in the US since 2011 (Lønstrup, 2014; NeutralIT, n.d.). The case is explained in more detail in Appendix 8. The total cost of the litigation is estimated to be DKK 5.25 billion including legal costs. Coloplast estimates that 95% of known lawsuits have been settled (Coloplast, Annual Report 2017-18, 2018), wherefore this case should not have much influence on future expenses. Notwithstanding, it is clear that legal matters and non-compliance can be costly, also in the future, especially due to Coloplast's increased operations and sales in the US. These litigations can, also, have negative reputational impacts, which is, especially, influential within emerging markets, where, as explained above, quality control is still limited and customers, therefore, rely heavily on the brand (Coloplast, Annual Report 2017-18, 2018).

Box 5.5

Threat: US litigation Environment

Impact on value drivers: Significant negative impact on EBITDA due to high special items

5.1.2 Economic

Many economic factors influence Coloplast's business. For example, economic downturns in terms of low GDP growth could impact Coloplast's sales negatively. This is not caused by people stopping to purchase its products, as most of these are essential to customers, but because reduced financial funds in a given country can force the government to impose changes to their healthcare reform and reduce reimbursements. Moreover,

³ 55% of US-based respondents to the Norton Rose Fulbright's 2015 Litigation Trend Annual Survey stated that more than five lawsuits were filed against their company in the previous 12 month, compared with 23% in the UK and 22% in Australia. Further, only 18% of the U.S. companies reported no lawsuits compared to 42% in the UK and 36% in Australia (Clements, n.d.). Moreover, the US is the country with the most lawyers per capita in the world (1 for every 300 inhabitants) (Clements, n.d.).

volatile exchange rates, interest rate risk and volatile oil prices can significantly affect Coloplast's operations and net income. Nonetheless, these factors are excluded from the analysis due to the fact that they cannot be forecasted, as explained above. The influence that exchange rates and oil prices have had on earnings previously, is explained in Appendix 1 and 2. Subsequently, there are no economic factors that are deemed as important and can be forecasted, to further discuss.

5.1.2 Socio-Cultural

Differences in national cultures and demographics, including changes and international cultural trends, significantly impact Coloplast. The taboo that is constructed around the diseases which Coloplast's products are aimed at, is a good example. People seem to be less likely to seek help early on, as it is not something they like to talk about (Svarre, 2013). Subsequently, a lessening of the taboo, will increase Coloplast's customer base and improve revenues. However, this development is difficult to observe and further investigation of it is beyond the scope of this thesis. Changing demographics and changes in life style diseases that influence Coloplast's business are more easily observable and are, therefore, elaborated on below.

5.1.3.1 Changing Demographics

The world's population is increasing at 1.1% per year (United Nations, 2017), which is driven most significantly by Africa and Asia but is expected to decrease in the future (United Nations, 2017). Moreover, significant gains in life expectancy have been achieved (Appendix 9). Subsequently, the population is ageing⁴. These demographic developments influence Coloplast's business positively: An increase in the population signifies a larger potential customer base, especially due to the growing elderly proportion. The elderly population consume more medical solutions than younger people, and are more prone to the chronic diseases which Coloplast's products target (Coloplast, Annual Report 2017-18, 2018; MarketLine, Coloplast A/S, 2018). This is expected to continue to impact revenue growth positively in the future.

Box 5.6

Opportunity: Growing Elderly Population

Impact on value drivers: Positive influence on revenue growth

5.1.3.2 Life Style Diseases

There has been a rapid increase in chronic illnesses due to changing life styles (The Global Cancer Observatory, Population Fact Sheet - World, 2018; Lane, 2017). Globally, there is a significant increase in diabetes and cancer cases, but especially in emerging markets, a clear tendency from treating malaria, dengue and polio to treating hypertension, cancer, diabetes and cardiovascular diseases has been observed (Berrisford & Lopez, 2018). As 50-60% of stoma operations are performed because of cancer⁵ (Coloplast, Annual Report 2017-18,

⁴ The proportion of people over 60 is currently growing at 3% annually and by 2050 it is expected that 25% or more of the world's population will be over 60 (United Nations, 2017).

⁵ Coloplast also produces other products that help different type of cancer patients. Nonetheless, the ostomy care business area is the most significantly affected by cancer patients (Coloplast, Annual Report 2017-18, 2018).

2018) and diabetes leads to wounds such as diabetic foot ulcers⁶ (Coloplast, Diabetic foot ulcers - prevention and treatment, 2012) these two diseases are especially influential on Coloplast's business. The number of cancer

Box 5.7

Opportunity: Increasing Number of Cancer and Diabetes Patients

Impact on value drivers: Positive influence on revenue growth

cases is expected to increase by 63% from 2018 to 2019 and the number of diabetes cases is expected to increase by 48% from 2017 to 2045 (See Appendix 8 for more information). Subsequently, Coloplast's customer base is likely to increase in the future, leading to higher revenues.

5.1.4 Technology

Coloplast is also influenced by many technological factors. These could include new manufacturing technologies, new IT systems that ease operations, or upcoming technologies that can ease the R&D process. Most important, are, however, technological advances within treatment and cure and surgical and medical trends, which are explained in the following (Coloplast, Annual Report 2017-18, 2018).

5.1.4.1 Technological Advances

Researchers, organizations, and companies work with technological advances that can improve life expectancy or ease life for people with illnesses, through better treatment, as well as earlier detection and cure (Makin, Breen, & Monson, 2001). These advances can impact Coloplast both positively and negatively. If illnesses are detected earlier, Coloplast's customer base increases both due to earlier treatment, but also due to the lower mortality rate earlier detection can bring. Nonetheless, earlier detection and cure, as well as better treatment, can also result in rendering Coloplast's products obsolete. The net effect of these technological advances are expected to reduce addressable markets and are, therefore, expected to influence revenue growth negatively in the long-run (Coloplast, Annual Report 2017-18, 2018).

Box 5.8

Threat: Earlier Detection and Cure

Impact on value drivers: Negative influence on long-term revenue growth

5.1.4.2 Surgical and Medical Trends

Surgical and Medical improvements also tend to influence Coloplast's operations negatively. For example, improvement in surgical precision now means that Colon cancer, if it has not spread substantially, can be surgically removed, allowing for normal bowel movement after the procedure (Vachani, 2003). Subsequently,

⁶ Approximately 15% of all people with diabetes will be affected by a foot ulcer during their lifetime (Coloplast, Diabetic foot ulcers - prevention and treatment, 2012)

Coloplast's ostomy bag is rendered obsolete for these patients, who would previously have needed them for life. Subsequently, it is expected that Coloplast's revenue growth is impacted negatively in the future.

Box 5.9

Threat: Surgical and Medical Advances

Impact on value drivers: Negative impact on revenue growth

5.1.5 Subconclusion

Coloplast is, due to its global operations, influenced by numerous political, economic, socio-cultural and technological factors, which affect Coloplast's sales and profitability both negatively and positively. An increasing general and elderly population as well as an increase in cases of cancer and diabetes leads to a growing customer base for Coloplast, therefore, influencing revenues positively. Nonetheless, stringent government regulations, pricing reforms and reimbursement reductions, law suits, as well as technological advances and surgical and medical trends impact Coloplast's operations negatively.

5.2 External Industry Environment: Porters Five Forces

Defining a single industry in which Coloplast operates is difficult, as it offers a variety of products on a global scale (Porter, Competitive Advantage, 1985). A comprehensive analysis of each industry and segment that Coloplast operates in is beyond the scope of this paper, wherefore, the medical devices and supplies industry is selected as the focal industry. Hereby, segments corresponding to Coloplast's business areas will be taken into consideration, if they contribute to the analysis. This is done to avoid overlooking differences amongst products and customers, by defining the industry too broadly, while not overlooking commonalities and linkages across related products by defining it too narrowly (Porter, Competitive Advantage, 1985). Geographical differences are, mainly, excluded from this analysis, as it is not deemed to improve the overall analysis and following valuation. The industry environment, analyzed through the Porter's Five forces Framework, is presented below.

5.2.1 Substitute Competition

The threat of substitute competition is not the same for all Coloplast's products but varies depending on the business area segment. These are presented below.

Ostomy, Continance and Urology Care Segments

Within the ostomy, continance and urology care segments, products are relatively homogeneous in function and price. This usually indicates a high threat of substitute products. Notwithstanding, as the products in these segments fulfill very specific purposes, not many alternative products exist. Besides the adult diaper, which is a less convenient alternative to the catheter, only improved treatments, which deem the existing product unnecessary, can be identified as a significant substitute product. An example are the surgical advances in treating cancer, explained in the PEST analysis. Other treatments do exist, but none that significantly affect Coloplast's revenue (PEST Analysis). Subsequently, the threat from substitute products is perceived as low in these segments.

Wound and Skin Care Segment

The wound and skin care segment faces a number of different substitute products as many different disinfectants, creams, patches and dressings exist which, to some extent, fulfill the same purpose as Coloplast's products. Moreover, some extant technologies perform the same function. An example is the V.A.C.® therapy System which treats wounds by applying a vacuum to the wound when it is closed in the hospital (Kinetic Concepts, Inc., 2014). However, such technologies are complex and will often only be used for complex wounds (Kinetic Concepts, Inc., 2014). Subsequently, the threat of substitution is perceived as moderate in this segment.

Overall, the threat of substitution is perceived as low, as ostomy, continence and urology care constitute a significantly larger part of Coloplast's business than wound and skin care. This is expected to have a positive impact on future revenue growth due to fewer competitive products.

Box 5.10

Opportunity: Low Threat of Substitute Products

Impact on value drivers: Positive impact on future revenue growth

5.2.2 Buyer power

Coloplast sells its products to hospitals, institutions, wholesaler and pharmacies, and, in some markets, also directly to the end-user (Coloplast, Annual Report 2017-18, 2018). The buyer power of these customers varies and is examined below.

End-user

While end-users are the ones that use the products, they represent small customers and the choice to switch to a competitor's product will not have a significant impact on Coloplast's revenue. This indicates low buyer power. On the other hand, it is relatively easy for individual end-users to switch to a competitor's product, as products fulfill the same purpose and prices do not vary significantly⁷. This in turn indicates higher buyer power. The end-user's choice, is, mainly, influenced by the reimbursement rate⁸ as well as the product that was introduced in the hospital, as users tend to be brand loyal (Andersen P., 2013). Subsequently, this customer group does not have high buyer power.

Institutions, Wholesalers and Pharmacies

Institutions, wholesalers and pharmacies are larger customers. A choice to switch to a competitor's products, which is still easy due to the homogenous products and prices, will, therefore, also have a more significant impact on Coloplast's bottom line. Additionally, this customer group purchases products in bulk, wherefore they negotiate to reduce prices. This indicates high buyer power. However, a strong brand and design can be key, as institutions, wholesalers, and pharmacies will purchase what they believe their customer want.

⁷ Prices are relatively fixed as they are dependent on healthcare and pricing reform (PEST analysis)

⁸ In Denmark, for example, you can only get full reimbursement if the products dictated from the state are chosen (according to the service law § 112).

This indicates lower buyer power. Subsequently, the buyer power of institutions, wholesalers and pharmacies is perceived as moderate to high depending on the size of the entity and purchase.

Hospitals

Hospitals are Coloplast's largest customers and contribute the most to revenue. Similar to the other customer segments, they can relatively easy switch between products on the market and they purchase in bulk, indicating high buyer power. However, hospitals are not influenced by which products the end-user wants. Hospitals introduce the products to the end-user, and due to brand loyalty, the hospital's decision of products significantly influences the end-user's choice. This indicates very high bargaining power. Furthermore, hospitals might be subject to national or transnational laws for purchasing products. These, tend to include open bidding rounds that result in the lowest possible price⁹. This decreases Coloplast's bargaining power relative to hospitals. Subsequently, hospitals tend to have very high buyer power

Overall, Coloplast's customer base is perceived as having high buyer power due to the importance of, especially, hospitals. This is expected to have a negative impact on revenue growth in the future while leading to higher distribution costs due to increased focus to maintain and develop relationships with, especially, hospitals. Moreover, R&D costs are expected to increase to continuously create relevant and improved products.

Box 5.11

Threat: High Buyer Power

Impact on value drivers: Negative impact on revenue growth and increasing distribution and R&D costs

5.2.3 Supplier power

Coloplast uses a number of raw materials and semi-finished resources, such as oil-based polymers, rubber, and plastic, in the manufacturing of its products (Coloplast, Annual Report 2017-18, 2018). As these are standard and homogeneous products, switching costs to change suppliers are low and price pressure is high. Moreover, many suppliers for these products exist on the market (Coloplast, Corporate Responsibility Report 2017/18, 2018). This indicates low supplier power. However, strict regulations in the industry, as established in the PEST analysis, impose switching costs when changing suppliers. Further, companies that concern themselves with corporate social responsibility, such as Coloplast, might need to screen suppliers for adherence to human and labor rights, environmental rights etc. (Coloplast, Corporate Responsibility Report 2017/18, 2018). This increases supplier power.

⁹ In Denmark, for example, contracts below DKK 500,000 are only subject to the standard conditions of the Danish regions and are made available without public bidding rounds. However, larger contracts are arranged following a EU tender or national announcement, to which specific contract terms are attached. (Region Hovedstaden, n.d.)

Notwithstanding, companies in this industry tend to constitute significant business for suppliers demanding large quantities and signing contracts for longer periods of time. This indicates lower supplier power and allows the companies to negotiate the price, leading to lower production costs. Subsequently, the power of raw material and semi-finished resource suppliers in the medical devices and supplies industry is perceived as low.

Box 5.12

Opportunity: Low Supplier Power

Impact on value drivers: Positive impact on production costs

5.2.4 Threat of entry

The medical devices and supplies industry experiences high growth, thereby making it attractive to enter for new players. This indicates high threat of entry. Nonetheless, high entry barriers exist. New entrants need to invest in production facilities, machinery and in R&D that need to adhere to strict regulations (Collins, 2015). Many of these are sunk costs. Moreover, it can be difficult for new entrants to compete with the players in the market, who already have the required know how and an established brand. Accordingly, these large, current players benefit from economies of scale, and their production expenses will tend to be less than that of new entrants. This indicates low threat of entry. Notwithstanding, already established companies in the life science sector will not have to incur a number of these entry expenses, as they might already have production facilities and R&D in place. This indicates high threat of entry.

Subsequently, the threat of entry to the medical devices and supplies industry varies, depending on who this entrant is and is, overall, perceived as moderate.

5.2.5 Industry rivalry

The level of competition amongst firms in the industry varies depending on the segment we investigate. An analysis of each, is presented below.

Ostomy Care

The global market for ostomy care products is worth around DKK 17-18bn with an estimated annual growth of 4-5%. The market consists of a few large and a number of smaller medical providers. Besides Coloplast, ConvaTec Inc. (ConvaTec) and Hollister Inc. (Hollister) are the dominant players, wherefore these are identified as Coloplast's main competitors in this market (See Appendix 10). Nonetheless, Coloplast remains the market leader with a total market share of 35-40%. Moreover, in-organic growth opportunities are limited for the large companies, due to regulations in many geographical markets. Hence, industry rivalry in the ostomy market is identified as low to moderate.

Continence Care

The global incontinence market is worth around DKK 13-14bn and has an estimated annual growth of 5-6%, which is higher than that of the other segments. This high growth is expected to have a positive impact on Coloplast's future revenue growth. There are three major companies that dominate the market, besides Coloplast: Wellsept Healthcare, C.R.Bard Inc (Bard) owned by Becton Dickinson (BD) and Hollister, which also are Coloplast's main competitors here (See Appendix 10). However, Coloplast is the market leader with a market share of about 40%. Notwithstanding, there has been a tendency toward new players that compete on price (Coloplast, Leading Intimate Healthcare 2011/12, 2012). As in the ostomy market, in-organic growth opportunities are limited for the large players. Subsequently, industry rivalry in the market for continence

Box 5.13

Opportunity: Rapid Growth in the Incontinence Market

Impact on value drivers: Positive future impact on revenue growth

products is deemed as moderate.

Urology Care

The global interventional urology market is worth around DKK 11-12bn and grows an estimated 3-5% per year. Here Coloplast's market share is significantly less than in the chronic care business areas, nonetheless, with a market share of 15%, it is still one of four big players. The key competitors are, therefore, Bard, Ethicon Inc. and Boston Scientific Corp. (Boston Scientific) (See Appendix 10). Subsequently, industry rivalry is deemed as high in this segment, which is expected to have a negative impact on Coloplast's long-term revenue growth.

Box 5.14

Threat: High Competition in the Urology Care Segment

Impact on value drivers: Negative impact on long-term revenue growth

Wound and Skin Care

The global wound and skin care market is worth around DKK 23-25bn and grows an estimated 2-5% per year. While wound care is only estimated to grow at 2-3% annually, the wound closing segment, which Coloplast

is largely focussed on, grows significantly more¹⁰ (Coloplast, Annual Report 2017-18, 2018; MarketLine, Coloplast A/S, 2018). This rapid growth is expected to have a positive impact on Coloplast's future revenue growth.

Box 5.14

Opportunity: The Closing Wound Segment

Impact on value drivers: Positive impact on future revenue growth

The wound and skin care market is significantly more fragmented with many smaller players (Coloplast, Annual Report 2012/13, 2013) and Coloplast's market share is only 7-9%. The key competitors are Smith&Nephew, URGO Group, ConvaTec and Mölnlycke Health Care AB (Mölnlycke) (See Appendix 10). In this market, in-organic growth is an option due to the low market share. Here, industry rivalry is, due to the many competitors and subsequent price pressure, perceived as high.

Box 5.16

Threat: High Competition in the Wound and Skin Care Segment

Impact on value drivers: Negative impact on long-term revenue growth

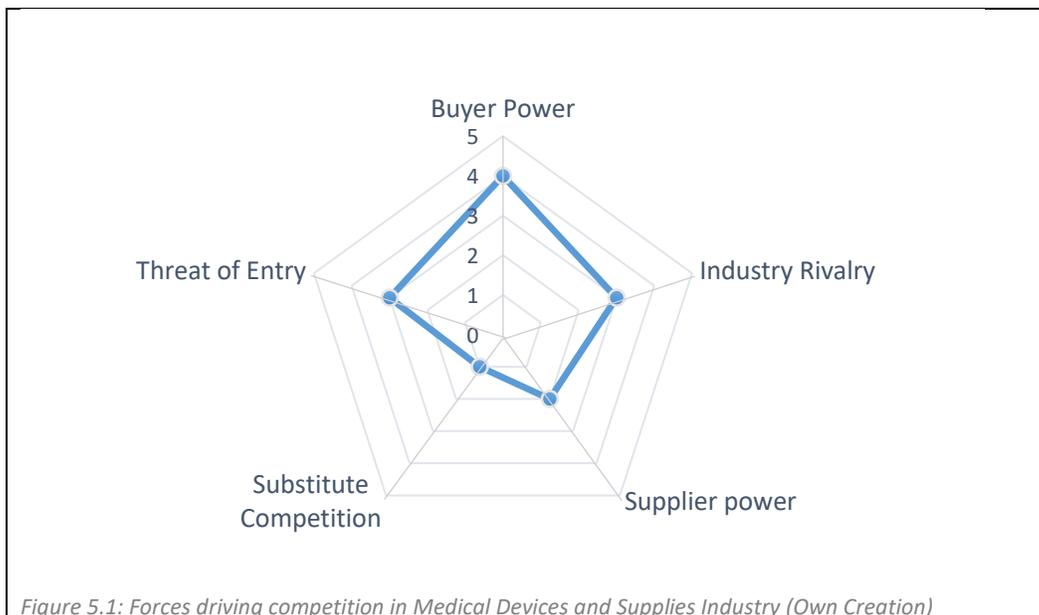
Overall, the competitive environment in the medical devices and supplies industry is perceived as moderate, and a general strategy to stay competitive is reducing costs or keeping them low, as prices are relative fixed.

5.2.6 Subconclusion

A summary of the level of Porter's five forces based on the above analysis can be seen in Figure 5.1. Overall, the competitive environment is perceived as intense due to few large competitors in most business areas, significant bargaining power from customers and added pressure from healthcare reforms (PEST analysis). Subsequently, Coloplast needs to continuously work on achieving organic growth and gaining market share through customer relationships and cost savings, to stay relevant and competitive.

Figure 5.1 - Forces driving competition in the Medical Devices and Supplies Industry

¹⁰ It appears that Coloplast is exploiting this opportunity in the beginning of 2019, as Kristian Villumsen, CEO of Coloplast, stated: "the business area landed a total organic growth of 11% in the quarter ... The growth is driven by the Biatain Silicone – platform." (Ritzau Finans, Coloplast/CEO: Er parate til sårplejeopkøb hvis mulighe..., 2019)



5.3 Internal Analysis: Value Chain Analysis

In the following, Coloplast's resources and capabilities will be examined through the value chain analysis. The key strength identified can be exploited and weaknesses can be minimized in order to improve Coloplast's competitive stand in the market. It should be noted that this is an internal analysis conducted from an outsider perspective and based on publicly available data, therefore it is limited.

The primary activities; inbound and outbound logistics, and the supporting activity; procurement, have been left out, as they do not bring any value to the analysis. Furthermore, technology development, which traditionally is a support activity, is presented as a primary activity, as R&D is an essential part of Coloplast's business.

5.3.2 Primary activities

Technology development

Coloplast has increased its focus on R&D and innovation with its LEAD20 strategy, which becomes evident in the higher R&D costs (Coloplast, Annual Report 2017-18, 2018). This increased focus, also requires a company set-up that allows for and ensures that new ideas can arise and be incorporated, which will be further elaborated under firm infrastructure (Bessant, Francis, & Thesmer, 2004). The renewed focus on R&D is in close proximity to the 'Closeness to all customers'-value. Close collaboration with healthcare professionals and end-users is sought, to build and understand the customers' needs¹¹. This strategy has previously worked well for Coloplast, as it was #1 in PatientViews 'Corporate Reputation of Medical-Device Industry – the Patient Perspective' list for four years in a row from 2012 to 2015 (Coloplast, Patient survey Rates Coloplast Best in Corporate Reputation for the Fourth Straight Year, 2015). However, in 2017 Coloplast was only ranked 4th, behind two of its main competitors: Hollister (1st) and ConvaTec (2nd) (Appendix 11). This indicates that the competitive advantage Coloplast has had, based on its customer-focused capability, is eroding. Nevertheless, Coloplast is still at an advantageous position compared to many other competitors (Appendix 11) (Coloplast, Annual Report 2017-18,

¹¹ This is, amongst others, achieved through Coloplast Care and Professional programs described under Services.

2018; ConvaTec, 2017; Owlser, Hollister's Competitors, Revenue, Number of Employees, funding and Acquisitions, n.d.). Therefore, it is expected that Coloplast keeps this competitive edge resulting in higher R&D costs, but lower distribution costs and a positive impact on revenue growth.

Box 5.15

Strength: Closeness to Customers

Impact on value drivers: Increased R&D costs but positive impact on revenue growth and distribution costs

Notwithstanding, Coloplast has dropped of Forbes 'world's most innovative companies' list in 2018¹² (Forbes Media, #328 Coloplast, 2018). In comparison, Bard and Boston Scientific made the list in 2017 and improved their positions in 2018 (Forbes Media, World's most innovative Companies, n.d.). This indicates that Coloplast's innovation capability is worsening, which could have a negative impact on future revenue, while not lowering R&D costs. This also demonstrates the wise decision to refocus energy on the R&D and innovation process, as this might allow Coloplast to regain its competitive advantage based on its innovative capabilities.

Box 5.16

Weakness: Depleted Innovation Capability

Impact on value drivers: Negative impact on revenue growth while R&D costs may stay the same

The focus on customer needs and continuous R&D, has resulted in a broad product portfolio for intimate healthcare conditions, which helps Coloplast in catering to varied needs of its customers (MarketLine, Coloplast A/S, 2018). This is especially beneficial when considering its largest customers; hospitals, as these might purchase multiple products from Coloplast, due to positive experience with one of these products. Subsequently, it is expected to have a positive influence on future revenue growth, as well as decrease distribution costs due to lower marketing and sales expenses. This helps support Coloplast strong market position. Moreover, there has been focus on ensuring the quality of products (Appendix 7), which is important in a highly regulated industry with high buyer power (Total Home Care Supplies, n.d.; Wound Source, 2010; Brahe Design, n.d.; AHRMM, 2017).

Box 5.17

Strength: Broad, High Quality Product Portfolio

Impact on value drivers: Lower distribution costs & higher revenue growth

¹² It was ranked #23 in 2014, #33 in 2015 and #29 in 2017 (Forbes Media, #328 Coloplast, 2018; Forbes Media, World's most innovative Companies, n.d.)

Operations

The importance of cost savings in the medical devices and supplies industry has been highlighted in the industry analysis above. Subsequently, production efficiency is also a theme of the LEAD20 strategy and the GOP4 (Appendix 7). Here, efficiency is mainly sought through outsourcing of the high-volume production to Hungary and a new production facility in Costa Rica. Outsourcing tends to lower costs due to, especially, the low wage levels in these countries. In Hungary, for example, average annual wages are only \$22.6 thousand compared to \$51.5 thousand in Denmark (see Appendix 12). While building the new production facility reduces EBIDTA in the short-run, savings are expected to be realized by FY2020/21 (Appendix 7). Moreover, multiple production sites globally have a positive impact on distribution costs, as products can be shipped from the closest production facility. Subsequently, Coloplast's efficiency is expected to improve in the future, resulting in a higher EBITDA margin due to lower costs. It could also result in higher property, plant and equipment (PPE) and inventory levels, but to determine this, further analysis is necessary, which is performed in the financial analysis.

Notwithstanding, when outsourcing part of the business there is a risk of losing key skills and capabilities, which earlier might have provided a competitive advantage (Leavy, 2004), as well as undermine product quality and flexibility. This is, however, not deemed as the case here. On the one hand, Coloplast is keeping and consolidating its pilot production in Denmark, which keeps the key skills and capabilities in house (Appendix 7). On the other hand, Coloplast is, as explained above, known for its high quality products, even after production began to be outsourced (Total Home Care Supplies, n.d.; Wound Source, 2010; Brahe Design, n.d.; AHRMM, 2017).

Box 5.18

Strength: Improved Efficiency of Production

Impact on value drivers: Higher operating costs in the short run, but a higher positive effect on the EBITDA margin in the long run. Possibly also higher PPE and inventory levels

Marketing and Sales

Coloplast is focusing more of its investment in marketing and sales than previously (LEAD20 strategy), which has had a positive influence on operations. The growth in its interventional urology business area is in large parts attributed to the marketing and sales initiatives in the US. Additionally, increased marketing and sales investments and new reimbursement schemes for intermittent catheters, are believed to have led to higher growth rates in Australia, Japan and South Korea (Coloplast, Annual Report 2017-18, 2018). Coloplast does, however, not invest much in traditional marketing. This is due to a number of reasons. Firstly, Coloplast's brand value, which is one of its most important resources. In Denmark, Coloplast has one of the strongest brands being ranked as the 18th most valuable brand in 2018 (Brand Finance, 2018). Further, Coloplast was number one in Berlingske Business Magasin's brand analysis in 2013 (Idskov, 2013), but has since moved down the list to rank 14 in 2018 (Andersen H. , 2018). Moreover, Coloplast ranked 69 on Forbes 'top Regarded Companies 2018' list (Forbes Media, Global 2000: Best Regarded Companies, n.d.). These ranks indicate that Coloplast has a strong

brand, which can provide them with customer attention without traditional marketing. It is, therefore, expected that this leads to lower distribution costs as well as has potential to impact future revenue growth positively.

Box 5.19

Strength: Strong Brand

Impact on value drivers: Lower distribution costs and potential higher revenue growth

Secondly, the broad product portfolio, as explained under technology development, allows for recognition, based on other products, customers might be familiar with. Lastly, as explained in the industry analysis, hospitals have high influence on which products the end-user consumes, and Coloplast, therefore, focuses the majority of its marketing and sales efforts here. The hospitals then function as ambassadors for Coloplast's products. Subsequently, Coloplast is heavily reliant on the hospitals' choice and ability to advertise the Company's products, wherefore losing such a customer has an even higher negative impact on future revenue growth. These marketing and sales efforts consist more in building customer relationships than introducing products (Coloplast, Annual Report 2017-18, 2018). Therefore, acquiring, retaining and training competent sales employees to attain and uphold these customer relationships is highly important. This is elaborated under human resource management. Moreover, Coloplast has created the Coloplast professional and HEAL programs in order to strengthen its relationships with healthcare professionals. This is elaborated below (Coloplast, Annual Report 2017-18, 2018). The efforts to maintain and improve relationships with hospitals as well as costs associated with improving the hospitals' understanding of the products are expected to result in high distribution costs in the future.

Box 5.20

Weakness: Reliant on Hospitals to Advertise its Products

Impact on value drivers: High distribution costs

Service

In 2013, Coloplast introduced its unique Coloplast Care program, which provides end-users with the support and knowledge they need to live with incontinence or a stoma (Coloplast, Annual Report 2017-18, 2018). This program has received the Danish Digital Award for Customer or Citizen Experience 2016¹³ (Ingemann & Larsen, 2016; Danish Digital Award, n.d.). The program works towards a closer relationship between Coloplast and its end-users, allows Coloplast to collect data for R&D, as well as creates awareness of Coloplast's brand and products. The database currently includes approximately 1.2 million users and offers direct support to end-users

¹³ The program both listens and reacts to a patients needs thereby creating a user specific experience focussed on resolving that users issues and improving his life quality (The results from the programs quality of life survey shows that a large number of respondents feel as if Coloplast Care has improved their life quality).

in more than 30 countries (Coloplast, Annual Report 2017-18, 2018). To maintain this program, costs are expected to increase in the future, but these are expected to be more than offset by the lower R&D and distribution costs and positive impact on future revenue growth, caused by the valuable data and marketing the program delivers.

Box 5.21

Strength: Coloplast Care Program

Impact on value drivers: Increasing costs offset by lower R&D and distribution costs

Moreover, Coloplast has launched two programs for healthcare professionals. The Coloplast Professional program, which helps nurses enhance their skills and experience within ostomy and continence care, and the Coloplast HEAL program that increases knowledge of modern world healing principles and improves the standard of care for patients (Coloplast, Coloplast.com, 2018). These help Coloplast establish relationships with healthcare professional, which, as explained above, is important as these introduce and recommend products to the end-users.

5.3.3 Support Activities

Firm infrastructure

As revenue increases, more subsidiaries are created, and production expands to more regions, Coloplast's infrastructure becomes increasingly important. Moreover, a company set-up that enables ideas and implementation for the R&D process is important. Subsequently, Coloplast is working towards scalable and efficient support functions combined with a global IT landscape, as well as an infrastructure that enables subsidiaries to focus on commercial priorities. This, Coloplast's deems as necessary to create unparalleled efficiency allowing them to retain or improve the strong position in the market (Coloplast, Annual Report 2017-18, 2018).

Additionally, as Coloplast is subject to regulations and healthcare reforms in many countries and faces relatively intense competition, it needs to stay relevant. This requires adapting to changes in these regulations and healthcare reforms, as well as creating new and improved products. Here, Coloplast has shown a unique ability to adapt. Coloplast, for example, consistently adapts its efforts to ensure eligibility for reimbursements through regular dialogue with national reimbursement authorities (Coloplast, Annual Report 2017-18, 2018). For this purpose, it has increased the number of employees involved by 50% (Coloplast, Annual Report 2017-18, 2018). Further, Coloplast has demonstrated its ability to stay relevant about a decade ago when it was not meeting sales targets despite an endless stream of new ostomy products (Brok-Kristensen, 2015). Realizing that traditional market research was insufficient, it conducted an ethnographic research project that found that users kept having problems with leakage, due to differences in the shape, where the ostomy bag should be attached. This research gave direction to R&D and resulted in new ostomy products that resolved the actual issue at hand (Brok-Kristensen, 2015). This further indicates that Coloplast does have a great company-set up for implementation of new R&D projects. This ability to adapt is expected to result in lower future R&D costs and

administrative expenses, as new ideas and products can be implemented faster. Furthermore, adhering to new regulations becomes less costly.

Box 5.22

Strength: Ability to Adapt

Impact on value drivers: Lower R&D costs and administrative expenses

Human Resource Management

Coloplast announced on November 1, 2018, that Kristian Villumsen takes over as the new CEO of Coloplast (Coloplast, News and press releases: Announcement No. 08/2018, 2018). While a new CEO can have significant impact on a company's future development, this thesis assumes that CEO's intent to maximize shareholder value, wherefore a change in CEO should have no impact on the share price (Grant, Contemporary Strategy Analysis, 2013).

Organizational Culture is an important intangible resource, as it has implications for operations, profitability and competitive advantage due to its impact on employees (Fowler, 2013). It constitutes the working environment for employees, and is, therefore, essential to acquire and retain competent employees, as well as, keeping them engaged and motivated and develop their skills further. Moreover, as mentioned under marketing and sales, creating and maintaining relationships with hospitals is critical, making competent sales employees to attain and uphold these customer relationships important. Here, Coloplast seems to be doing well, as an internal survey with a response rate of 93% has shown that the employees' engagement level is high (Coloplast, Annual Report 2017-18, 2018). Further, Coloplast was ranked #328 on Forbes 'World's best employers 2018' list, which, however, was well behind its competitor Boston Scientific (#128) (Forbes Media, Global 2000: World's Best Employers, n.d.). Moreover, positive comments regarding Coloplast's work atmosphere can be reviewed as a general trend amongst employees on indeed.com¹⁴, while some negative comments exists (Various Coloplast Employees, n.d.). Notwithstanding, the available information is insufficient to assume anything about Coloplast's culture or employees. Therefore, this is not included in the forecast, and following valuation.

5.3.3 Subconclusion

The internal analysis has identified a number of key resources and capabilities that come together to create a strength for Coloplast, as well as two weaknesses. Here it should be noted that Coloplast definitely possesses more strengths and weaknesses, however, due to the analysis being based on publicly available data, instead of internal data, these are the ones with enough evidence to support.

Overall, the firm infrastructure and organizational culture support a dynamic market by attracting, retaining and developing competent and engaged employees and adapting to new market conditions, as well as customer needs. Moreover, through the LEAD20 strategy, a strong focus has been put on increasing efficiency further, working to improve the depleting innovation capability, as well as improving relationships with, especially,

¹⁴ This is just a simple analysis of 73 employee comments on Indeed.com to identify some concrete factors of Coloplast's organizational culture. It is not a definition of Coloplast's culture, just general trends identified in these comments, and should not be taken as more than they are.

hospitals. Subsequently, the LEAD20 strategy seems to work towards minimizing the negative impact of its weaknesses.

5.4 SWOT analysis

Table 5.1 presents a summary of the environmental factors affecting Coloplast’s business, as well as its internal strengths and weaknesses using the SWOT framework.

	Positive	Negative
Internal	<p>Strengths:</p> <ul style="list-style-type: none"> • Closeness to Customers ↑ R&D costs, ↓ distribution cost, ↑ growth • Improved Efficiency of Production ↑ costs short-run, ↓ costs long-run, ↑ EBITDA margin • Broad, High Quality Product Portfolio ↓ distribution cost, ↑ growth • Strong Brand ↓ distribution cost, ↑ growth • Ability to Adapt ↓ R&D costs, ↓ admin expenses • Coloplast Care Program ↑ admin expenses, ↓ R&D & distribution cost, ↑ growth 	<p>Weaknesses:</p> <ul style="list-style-type: none"> • Reliant on Hospitals to Advertise its Products ↑ distribution cost, ↓ growth • Depleted Innovation Capability ↓ growth, same R&D cost
External	<p>Opportunities:</p> <ul style="list-style-type: none"> • Increasing Access to Healthcare in Emerging Markets ↑ growth • Growing Elderly Population ↑↑ growth • Increasing Number of Cancer and Diabetes Patients ↑ growth • Low Threat of Substitute Products ↑ growth • Low Supplier Power ↓ production cost • Rapid Growth in the Incontinence Market ↑ growth • The Closing Wound Care segment ↑ growth 	<p>Threats:</p> <ul style="list-style-type: none"> • Stringent Government Regulations ↑ operating costs • Healthcare Reform & Government Reimbursement ↓↓ growth • US Litigation Environment ↑↑ special items, ↓↓ EBITDA margin • Earlier Detection and Cure ↓ long-term growth • Surgical and Medical Advances ↓ growth • High Buyer Power ↓ growth, ↑ distribution costs • Heavy Reliance on European Markets Sensitive to positive and negative changes here • High Competition in the Urology Care Segment ↓ long-term growth • High Competition in Wound & Skin Care ↓ long-term growth
<p>↑ means increasing, ↓ means decreasing and double arrow means significantly increase or decrease</p>		
<p><i>Own creation based on the strategic analysis</i></p>		

6. Financial Analysis

The financial analysis of Coloplast will look at and evaluate the historical development of Coloplast's financial position, in order to identify key developments and calculate ratios and margins on which the forecast and later valuation can be founded. This analysis will be based on the last five financial periods, namely 2013/14 until 2017/18. While the analysis and later forecast and valuation would benefit from being based on the individual business areas, only the revenue is split into these, wherefore this is not possible.

Throughout the analysis, benchmarking with the main competitors; Boston scientific, ConvaTec, Bard & BD, Mölnlycke and Smith&Nephew, will be included to give a more comprehensive view of Coloplast's financial position. These have, as explained in Appendix 10, been identified as the main competitors with the available financial statements for this purpose. Their financial periods are based on the normal calendar year, and are, therefore, different from Coloplast's. However, changing the financial statements to the same financial period as Coloplast, would create more confusion than it would help the analysis. This is, therefore, not done. The reformulation of the competitors' statements is done on the same basis as Coloplast's i.e. items classified as financing and operating in Coloplast's reformulated statements are identified the same for competitors. An average and median of these competitors' financials will be used under the terms 'Average Competitors' and 'Median Competitors' throughout the analysis¹⁵, and ConvaTec's financials will be used as a more specific comparison, as its revenue size is identical to that of Coloplast.

6.1 Reformulate Financial statements

Coloplast's financial statements have been prepared in accordance with the International Financial Reporting Standards as adopted by the EU, and additional requirements set out in the Danish Financial Statements Act. (Coloplast, Annual Report 2017-18, 2018). The financial statements are representative for the actual financial situation, due to the high level of information as well as transparency. Coloplast's financial statements are significantly more transparent than those of the main competitors. Moreover, Coloplast does not appear to hide negative information, as positive and negative developments are mentioned equally, throughout the financial statements and Management's report. Lastly, both the statement by the Board of Directors and Executive Management and the Independent Auditor's Report states that the financial statements provide a fair and true view of Coloplast's financial position (Coloplast, Annual Report 2017-18, 2018).

6.1.1. Analytical Income Statement

Coloplast's income statement (Appendix 13) will be reformulated, reflecting operating and financing activities, providing EBITDA, EBIT and NOPAT, which are useful for comparison with competitors and the following forecast. Coloplast's and the competitors' analytical income statements can be seen in Appendix 13.

¹⁵ Average and Median Competitors is an average of all competitors' ratios from the most recent year available. i.e. for Bard 2016, BD 2018, Boston Scientific 2018, ConvaTec 2018, Mölnlycke 2017 and Smith&Nephew 2018. The ratios for Coloplast and ConvaTec are based on 2018 numbers

Pension costs, and depreciation and amortization have been subtracted from the cost items: production costs, distribution costs, administrative expenses, and R&D costs (Note 1 & 2 in Table 14 in Appendix 15). Pension costs are not operating activities as they are interest-bearing (Petersen & Plenborg, 2012). Except for defined benefit plans, limited information exists on how these affect each cost item, wherefore the proportion of total staff costs relative to each cost item have been used to estimate the pension costs for each of these cost items (see Note 2 in Table 14 in Appendix 15). While significant differences in levels of pension exists globally, indicating that these costs might be more significant for one of these cost items, this is deemed as the best and simplest way to divide the pension costs. Depreciation and amortization are part of operating activities, but are subtracted from the cost items in such that we can get the EBITDA margin, where after they are added back to get EBIT (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012).

Special items are kept as operating activities as they cover costs in connection with the transvaginal mesh law suits, which are, in accordance with the PEST analysis, expected to be frequent in the future (Coloplast, Annual Report 2017-18, 2018). Moreover, profit/loss after tax on investments in associates are not included here, because the associates, IctalCare A/S and Acarix AB do not operate within the same industry as Coloplast (Coloplast, Annual Report 2017-18, 2018). They are, therefore, recognized as financing activities.

Lastly, taxes need to be considered. Corporate tax on EBIT¹⁶ is based on the effective tax rate and the tax shield of net financial expenses is based on the marginal tax rate as no information is available to estimate a better rate (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012). This provides us with NOPAT.

6.1.2. Analytical Balance Sheet

Coloplast's balance sheet (Appendix 14) also needs to be separated into financing and operating activities to be comparable with competitors and usable for the forecast. Coloplast's and the competitors' analytical balance sheets can be seen in Appendix 15.

Intangible and tangible asset, inventories, receivables, prepayments and deferred income and payables are all an essential part of operations and are, therefore, classified as operating. Nonetheless, receivables and payables include derivatives, which are financing activities (See note 5 in Table 14 in Appendix 15). Further, restricted cash and amounts held in escrow are operating activities, as these relate to the transvaginal mesh lawsuits, just like special items in the income statement (Coloplast, Annual Report 2017-18, 2018; Coloplast, Annual Report 2015/16, 2016; Coloplast, Annual Report 2012/13, 2013). Moreover, other provisions include provisions for legal claims associated with the aforementioned law suits and a number of other operating liabilities (Coloplast, Annual Report 2017-18, 2018), and are, therefore, categorized as operating. Furthermore, deferred tax assets and provisions for deferred tax, are classified as operating activities, as these, mainly, refer to operating assets and liabilities and their values (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012). Lastly, it is estimated that 1.5% of cash and cash equivalents (CCE) is needed for daily operations and is, therefore, operating (Sørensen, 2012).

¹⁶ One could argue that calculating corporate tax on EBITA would be more appropriate, as amortization often does not affect tax when realized in the financial statement. Nonetheless, amortization is small and this thesis follows the approach from (Petersen & Plenborg, Chapter 4: The analytical income statement and balance sheet, 2012), where Corporate tax is taken on EBIT.

Other credit institutions, marketable securities, CCE (as mentioned above), derivatives (as mentioned above), provisions for pensions and similar liabilities (as mentioned under the analytical income statement), lease liability and other equity investments/investments in associates¹⁷ (as mentioned under the analytical income statement) are all identified as financing activities. Lastly, income tax is categorized as financing, as Danish tax authorities impose interest for late payment (SKAT, 2019).

6.2 Growth & Common-Size Analysis

In the following, the development (table 6.1) and value relative to revenue (Table 6.2) of some important accounting items and margins for Coloplast and competitors will be introduced and discussed.

	Coloplast				Average Competitor			
	2015	2016	2017	2018	2015	2016	2017	2018
Revenue	11.9%	5.6%	5.8%	5.9%	7.5%	8.5%	2.5%	11.9%
Operating costs	13.0%	4.8%	6.2%	8.5%	10.7%	3.2%	0.6%	11.7%
EBITDA**	(40.0%)	114.6%	21.2%	1.7%	9.7%	52.5%	18.2%	13.7%
EBIT	(46.8%)	143.3%	21.8%	1.6%	(15.3%)	(13.4%)	50.6%	7.6%
NOPAT	(47.8%)	155.0%	21.4%	1.7%	(24.2%)	(176.7%)	118.8%	64.4%
Net income	(62.4%)	249.6%	20.8%	1.2%	(4.3%)	54.6%	(51.0%)	365.1%
CapEx	24.7%	3.6%	(2.5%)	(5.4%)	39.5%	(3.2%)	12.5%	(9.4%)
NWC	(209%)	79.7%	707.2%	20.1%	(42.0%)	27.1%	142.9%	15.4%*
NIBD	54.4%	(48.3%)	(382.1%)	14.3%	103.0%	(4.0%)	(14.6%)	74.2%
Invested Capital	(35.1%)	24.4%	66.9%	9.2%	35.4%	2.8%	4.0%	39.9%

**BD's NWC growth is excluded here as it is very low (negative 5179.6%)*
*** For comparability, we here use Coloplast's EBITDA margin after special items*
Own Creation

	Coloplast					Average Competitor	Median Competitor	ConvaTec
	2014	2015	2016	2017	2018	2018	2018	2018
Operating costs	(61.5%)	(62.1%)	(61.7%)	(61.9%)	(63.5%)	(74.6%)	(75.2%)	(73.9%)
EBITDA*	30.5%	16.3%	33.2%	38.1%	36.5%	26.5%	26.1%	26.1%
EBIT	27.0%	12.9%	29.6%	34.1%	32.7%	18.7%	15.7%	16.0%
NOPAT	20.3%	9.5%	22.8%	26.2%	25.2%	15.8%	16.0%	16.0%

¹⁷ Coloplast no-longer has investments in associates in 2018, but instead it has other equity investments, which are the same investment as before, however, they are no longer qualified as investments in associates (Coloplast, Annual Report 2017-18, 2018)

Net income	19.2%	6.5%	21.4%	24.5%	23.4%		13.5%	13.5%	12.1%
CapEx	(3.8%)	(4.2%)	(4.2%)	(3.8%)	(3.4%)		(4.2%)	(1.9%)	(1.9%)
NWC	10.2%	(10.0%)	(1.9%)	11.0%	12.5%		1.5%	(2.3%)	19.3%
NIBD	(5.6%)	(7.8%)	(3.8%)	10.1%	10.9%		74.0%	68.5%	80.9%
Invested Capital	44.9%	26.1%	30.7%	48.5%	50.0%		186.3%	169.1%	169.1%
* For comparability, we here use Coloplast's EBITDA margin after special items Own Creation									

6.2.1 Revenue and Operating costs

Coloplast's revenue growth has been above that of the market, but it faces intense competition by competitors growing at even higher rates. Notwithstanding, future revenue growth is expected to be closer to that of average competitors when excluding the impact of exchange rates and acquisitions. This is also in line with the consensus estimates (Appendix 16).

Coloplast appears to have a cost advantage, as operating expenses as a percentage of revenue are more than 10 percentage points less than those of Average and Median Competitors. While that is said, Coloplast's operating costs have been growing at a rate higher than revenue growth and Average Competitors, indicating Coloplast is moving away from its advantage. This can, in part, be explained by increased R&D costs, but also by the focus on efficiency, which increases costs in the short run (Strategic analysis). Moreover, Coloplast does not include litigation costs here, but rather as special items, which means their actual cost advantage is less in years with high special items. Nonetheless, a clear cost advantage is still evident, which Coloplast is expected to largely keep in the future.

6.2.2 EBITDA, EBIT, NOPAT & Net Income

Due to the lower production costs, Coloplast's EBITDA margin is also approximately 10%-points higher than those of Average and Median Competitors and ConvaTec. Only in 2015 the EBITDA was significantly less, which is due to the high settlement costs associated with the transvaginal mesh law suits. As we expect revenue growth to improve in the future and that Coloplast will keep its cost advantage, it is to be expected that the EBITDA margin will remain high while being negatively impacted by litigation costs. This is also in line with the consensus forecast (Appendix 16).

The difference between Coloplast and Average and Median Competitor's EBIT is even more significant, showing that Coloplast has a smaller depreciation and amortization expense. This is, most likely, due to Average Competitors' having significantly higher intangible assets. This difference is, however, reduced when looking at NOPAT and Net income, where we are back at a 10%-point difference. This indicates, on the one hand, that Coloplast might pay more taxes than competitors, and, on the other hand, that Coloplast might have less of a tax shield for net financial expenses. We especially see this when looking at ConvaTec, as its EBIT and NOPAT are identical and there are 4 percentage points between NOPAT and net income. As for EBITDA, we expect that Coloplast's EBIT, NOPAT and net income will remain high.

6.2.3 Net working capital (NWC)

NWC measures a company's liquidity and short-term health and, to some extent, also operational efficiency, as sufficient NWC provides potential to invest and grow (Kenton, 2019). Coloplast's NWC has been around 11% except for 2015 and 2016, where it, due to high provisions for litigation purposes, was negative. This is also clear from the high negative growth from 2014 to 2015. This generally high NWC and the positive growth since 2015, indicates that Coloplast has good short-term health. Moreover, Coloplast's NWC is much higher than that for Average and Median Competitors, who's NWC was relatively small or negative in 2018 despite positive NWC growth from 2016 and forward. Nonetheless, ConvaTec's NWC is higher than that of Coloplast, which indicates that it has more potential to invest and grow in the near future. We expect Coloplast's liquidity health to remain well in the future, estimating that the NWC level relative to revenue increases due to higher operating assets and steady operating liabilities.

6.2.4 Capital Expenditure (CapEx)

Capital expenditure (CapEx) is the investment made in PPE in a given year, which is capitalized over a longer time period due to the longer life of the underlying asset. Therefore, CapEx shows us how much a company is investing to maintain or grow the business. Coloplast's CapEx rose by 25% in 2015 but has since then not changed significantly. A similar development can be seen for Average Competitors. Nonetheless, Coloplast's level of CapEx relative to revenue is similar to that of Average Competitors, but higher than Median competitors. From the strategic analysis we know that Coloplast is expanding its business currently through a new production facility in Costa Rica. Similar actions have also been taken in recent years (see production site analysis below). Subsequently, Coloplast's level of CapEx appears appropriate. In the future, we expect that CapEX relative to revenue will increase due to the production facility being built in Costa Rica and then return to the historical level.

6.2.5 Net interest-bearing Debt (NIBD)

Coloplast's NIBD was negative in 2014 to 2016, which means that Coloplast had more interest-bearing assets than liabilities. In 2017, however, NIBD became positive and increased by more than 300%. Notwithstanding, NIBD constitutes a significantly larger percentage of revenue for Average and Median Competitors. This indicates that competitors, such as ConvaTec, whose NIBD is even higher than that of Average Competitors, face larger interest payments. This was also evident in the discussion of EBIT, NOPAT and Net income above. However, higher debt levels are not necessarily a bad thing when used to make good investments that improve the company's ability to compete in the market. We expect Coloplast to keep the recent NIBD level relative to revenue in the future.

6.2.6 Invested Capital

Due to a significantly lower NIBD, lower equity and lower operating assets and liabilities, Coloplast's Invested Capital is also significantly lower than that of competitors. The majority of this difference comes from the significant difference between Coloplast's and Average Competitors' intangible assets, as explained above. Due to increasing operating assets, decreasing operating liabilities, increasing equity and increasing NIBD, Coloplast's invested capital has increased since 2015. We expect that Coloplast's level of IC relative to revenue will remain relatively steady in the future.

6.3 Profitability Analysis

In the following, a profitability analysis of Coloplast compared with Average and Median Competitors and ConvaTec is introduced. Based on the Dupont model, the foundation for the ROE calculation will be investigated and discussed taking the above common-size and growth analysis into an account.

6.3.1 Financial Leverage and NBC

Coloplast's financial leverage is lower than that of Average and Median Competitors (Table 6.3). In 2014 to 2016 it was negative, which can be explained by the negative NIBD in those years. Due to the significant increase in NIBD in 2017, financial leverage and NBC (Table 6.4) increased significantly. Financial leverage is, nonetheless, still half of that of Average and Median Competitors and a third of that of ConvaTec. This indicates good long-term liquidity (Petersen & Plenborg, Profitability Analysis, 2012), which is in line with the high NWC above.

	2015	2016	2017	2018
Coloplast	(0.2)	(0.1)	0.3	0.3
Average Competitors	(1.8)	0.9	0.7	0.7
Median Competitors	0.6	0.9	0.6	0.8
ConvaTec	(15.7)	1.4	1.1	0.9
<i>Own creation</i>				

%	2015	2016	2017	2018
Coloplast	(30.6)	(38.2)	47.6	16.9
Average Competitors	4.2	4.7	5.2	4.5
Median Competitors	3.3	3.9	4.9	4.2
ConvaTec	8.2	10.2	9.4	4.9
<i>Own creation</i>				

A higher financial leverage results in a higher variation of ROE. Nonetheless, increased debt is, as mentioned above, not necessarily bad as investments can be made that improve the competitive stand. Moreover, it is the spread between NBC (Table 6.5) and ROIC (Table 6.8) that determines whether the financial leverage has a positive or negative effect on ROE. This will be explained further below. While Coloplast's NBC is significantly different than that of Average Competitors and changes drastically within the historical period, we will not interpret to much based on this, as the NBC rarely ever reflects the company's actual borrowing rate (Petersen & Plenborg, Profitability Analysis, 2012).

We expect that both the financial leverage and NBC in the future will stay relatively close to the values in recent years.

6.3.2 Profit Margin (PM) and Turnover Rate Invested Capital (TRIC)

%	2015	2016	2017	2018
Coloplast	13.8	15.9	23.9	25.0
Average Competitors	8.5	9.9	11.5	12.5
Median Competitors	10.3	8.3	12.9	15.9
ConvaTec	11.4	2.0	13.6	16.0
<i>Own creation</i>				

	2015	2016	2017	2018
Coloplast	3.0	3.6	2.6	2.1
Average Competitors	0.7	0.7	0.7	0.7
Median Competitors	0.7	0.6	0.7	0.6
ConvaTec	0.5	0.5	0.6	0.6
<i>Own creation</i>				

Coloplast's PM is significantly larger than that of Average and Median Competitors in all years except for 2015 and has a positive upwards going trend (Table 6.5). In 2015 and 2016 Coloplast's PM was lower than the other years, due to a significantly lower NOPAT resulting from high special items, as explained previously. This high PM is very attractive as it means that Coloplast generates more operating income per DKK of revenue than Average and Median Competitors. Notwithstanding, ConvaTec's PM is also larger than that of Average competitors and has also been increasing since 2016. These high PM's are to be expected as companies characterized by a high proportion of fixed costs, such as manufacturing and R&D companies, often have low TRICs and, therefore, need higher PMs to attract capital to the industry (Petersen & Plenborg, Profitability Analysis, 2012). Nonetheless, Coloplast's TRIC is also significantly larger than that of Average Competitors and ConvaTec (Table 6.6), which is not surprising as it generates relatively high revenues while having less invested capital than Average and Median Competitors.

We expect that Coloplast's TRIC will remain relatively steady as IC is expected to stay at the same level relative to revenue. Coloplast's PM is not expected to stay as high as in recent years, but rather move towards the average of the last 5 years due to the burden of special items.

6.3.3 Return on Invested Capital (ROIC) and the Spread

%	2015	2016	2017	2018
Coloplast	62.0	57.4	61.7	52.2
Average competitors	5.0	6.1	7.1	7.6
Median Competitors	6.4	5.2	7.8	9.2
ConvaTec	5.9	1.1	7.6	9.2
<i>Own creation</i>				

	2015	2016	2017	2018
Coloplast	72.2	95.6	14.1	35.3
Average competitors	0.8	1.4	1.9	3.1
Median Competitors	0.8	2.0	1.3	4.3
ConvaTec	(2.4)	(9.1)	(1.8)	4.3
<i>Own creation</i>				

Coloplast's ROIC is, due to the high PM and TRIC, significantly larger than that of Average and Median Competitors (Table 6.7). The high ROIC, further, results in a high, positive spread between NBC and ROIC (Table 6.8), even in 2017 and 2018 where Coloplast's NBC increased significantly (Table 6.5). Therefore, Coloplasts financial leverage has a positive effect on ROE, as explained above. The same goes for Average and Median Competitors, even though their spread is much lower. ConvaTec's high financial leverage impacted ROE negatively in 2015 and 2016 due to a negative spread. Nonetheless, the spread has since then improved significantly.

We expect that, due to a lower PM in the future, ROIC will also decrease slightly. Subsequently, the spread will also be lower than in recent years.

6.3.4 Return on Equity (ROE)

%	2015	2016	2017	2018
Coloplast	25.1	46.9	65.4	62.0
Average competitors	12.0	5.8	7.2	9.15
Median Competitors	10.9	8.0	7.7	12.0
ConvaTec	42.7	(11.2)	5.6	13.1
<i>Own Creation</i>				

Coloplast’s ROE is, as can be expected based on the discussion of the ratios on which it is built, significantly higher than that of Average and Median Competitors (Table 6.9). 2015 values appear much lower than later levels, which is due to the fact that the model does not take negative NIBD’s into an account. We will, therefore, focus more on the most recent ROEs. ROE for 2017-2018 is higher and indicates that Coloplast is more profitable than Average and Median Competitors. This was also evident in the common-size and growth analysis, where Coloplast’s EBITDA, EBIT, NOPAT and Net Income was identified as higher than Average and Median Competitors. Subsequently, Coloplast seems to be competitive in the market and, to some extent, outperforms competitors. Nonetheless, the lower revenue growth identified above, as well as an increase in operating costs, shows the continuously need to improve to keep this advantage.

We expect that Coloplast will be able to maintain its good financial position, and, therefore, expect that ROE will only be somewhat lower in the future. This is due to the lower PM and, therefore, lower ROIC and spread. This is also in line with the first three years of the consensus forecast (Appendix 16).

6.4 Production move to Costa Rica

Coloplast has purchased land in Cartago, Costa Rica where it is building the new, high-volume facility, which will be completed in 2020. The impact of this new production facility on the company’s financials and value drivers, can be estimated based on how similar production sites have, previously, impacted Coloplast and competitors’ financial statements. While it would be most appropriate to look at how these affect the financial situation long-term, it is too difficult to distinguish the specific influence of a production facility from other operations, wherefore, we will only look at the development in the year before, the relevant year and one or two years after the facility is established. Appendix 17 shows costs, PPE and inventories relative to revenue in the year before, the relevant year and the year(s) after the production facilities were completed¹⁸. These are also presented in the following.

6.4.1 Coloplast’s production facility in Tatabányán, Hungary, 2001/2

In 1999 Coloplast decided to outsource part of the production to Hungary in order to save costs. It invested DKK 65m to build a 13,800 m² production facility and administration areas in Tatabányán that was completed in April 2002 (Pyndth & Pedersen, 2006, p. 90). The production facility appears to have helped reduce costs (see

¹⁸ As Coloplast’s factory in Tatabányán was completed towards the end of FY2001/2, we are mostly interested in the development from t=0 to t=1 and t=1 to t=2. On the contrary, we are most interested in the development from t=-1 to t=0 and t=0 to t=1 for the other cases as completion here was at the beginning of the financial period.

Appendix 17). Production costs relative to revenue fell by 3.2% and administrative expenses fell by 4%, whereas distribution costs increased by 2.6% from 2001/2 to 2003/4. Overall costs improved slightly relative to revenue, whereas they increased slightly the year before and after. Furthermore, there is a large, positive impact on PPE and a more significant increase in inventories relative to revenue.

6.4.2 Coloplast's production facilities in Nyírbátor, Hungary and Zhuhai, China, 2007/8

In the end of 2007 Coloplast's new, 22,000 m² production facility in Zhuhai, China was completed and in the beginning of 2008, the production facility in Nyírbátor, Hungary was completed, also measuring 22,000 m² (Coloplast, New Factory in China, 2007). A total investment of DKK 239m was necessary to complete these facilities (Coloplast, Annual Report 2006/7, 2007).

These two new production facilities appear to have improved costs, as total costs relative to revenue fell by 3.5% from 2007/8 to 2008/9. Notwithstanding, production costs increased by almost 3%. This negative development is by Coloplast attributed to the inefficient use of production apparatus due to lower-than-expected sales, most likely due to the financial crisis. This effect would have been more severe, if not for the improved production economy from the relocation of production to Hungary and China (Coloplast, Annual Report 2008/9, 2009). Two years after, production costs fell by more than 8%. Moreover, distribution costs fell by 3% from 2006/7 to 2008/9 and administration expenses fell significantly by 33%.

PPE actually fell from 2007/8 to 2008/9 which, however, might simply be due to the fact that many investments for the factories were made in previous years as PPE increased by almost 8% the year before, despite the fact that it divested a large part of its business (Coloplast, Annual Report 2006/7, 2007). Moreover, inventory rose by 24% in the year the production facility came in place, but fell again by 23% the year after, returning close to the initial inventory level.

6.4.3 BD's Production facility in Tatabányán, Hungary, 2010

In 2010, BD built a production site in Tatabányán, Hungary (Becton Dickison, 2010). Total cost have slightly improved from 2009 to 2011, relative to revenue. Production costs decreased from 2009 to 2010, then increasing slightly but then decreasing even more. It could, therefore, appear that the new production facility has had a positive effect. The level of PPE relative to revenue is the same in 2009 and 2011, whereas inventory has decreased slightly, rather than increased.

6.4.4 Boston Scientific's production facility in Penang, Malaysia, 2018

On February 6, 2018, Boston Scientific opened its manufacturing hub in Penang, Malaysia (Boston Scientific Corp, 2019). This does not seem to have impacted production costs as these have stayed at the same level relative to revenue. However, total costs have been reduced by 1.5%. The reason for this insignificant impact could be the fact that the new production facility most likely does not constitute a significant part of production as it is only one out of 9 facilities that together are responsible for 45% of products manufactured (Boston Scientific Corp, 2019). Similarly to costs, inventory was not affected by the new facility, and PPE actually fell by 3.5% similar to the year before.

6.4.5 Coloplast's Future Production Site in Cartago, Costa Rica

The new production facility in Cartago, Costa Rica will require a total investment of DKK 300m. Based on this high investment amount and the square meter price paid previously, which corresponds well to the price of construction in Costa Rica (Henfling, 2019), we expect this factory to measure approximately 53.460 m² (Table 28 in Appendix 17). Based on this, and the other factories size relative to their contribution to production, we expect that it will constitute about 25% of total production in the future (Table 30 in Appendix 17). Subsequently, this factory should have a more significant impact on the financials than many of the examples above.

We will now look at the financial items from the above analysis and how the production facility in Costa Rica is likely to affect them. Here it should be noted that the estimations made are only for the impact of the product facility, and might, therefore, differ from the actual forecasted value drivers. The average development of production costs, excluding the development from 2006/7 to 2007/8 which seems to be influenced by other factors as explained above, is -1.9% in the year following the production sites completion. As the impact of the site in Costa Rica should be more significant, we expect a decrease in production costs of 2.5%. Hereafter they are expected to increase slightly as production takes up. Distribution cost developed at an average of -0.2%, nonetheless, the values for Coloplast's production site in Tatabányán seem quite high, as explained above. We therefore expect the impact of the facility in Costa Rica to be closer to the 2007 development of -3%. Moreover, based on the same argumentation, it is expected that distribution costs will decrease slightly in the years after. Further, Administration costs developed at an average of -9.6% in the year after the completion of the production site, and the following year this rose to -20%. This average is mainly influenced by the development of the production sites in Nyírbátor and Zhuhai, which constituted a large part of production. Subsequently, we expected that administration expenses decrease by around 9% in the first year of completion and 11% in the following years. Following these, total average costs in the year after completion decreased by 2.7% and the year after by 1.3%. Subsequently, we expect that total costs will behave similarly in the Costa Rica case.

PPE has on average decreased by 4.4% in the first year, but then decreased by 1%. This development is most likely because it is very difficult to distinguish the additions from investment from other additions as well as the fact that most PPE investments have been made before the completion of the factory. Subsequently, we expect PPE to increase in the years leading up to the completion and also slightly in the year the production facility is established. Lastly, average development in inventory is an increase of 21.3% though with a 7% decrease the year after. As the impact of the production facility in Costa Rica is somewhat higher than the impact of the other cases, we expect that inventory is also influenced more. Subsequently, we expect that inventory increases by 25% in the year of completion, but then decreases by 8% in the following years.

6.5 Subconclusion

Coloplast has a strong financial position relative to Average and Median competitors as well as ConvaTec. This is visible in the high margins and a high ROE and ROIC. Moreover, Coloplast is experiencing a positive development in these. Coloplast is expected to be able to maintain its strong financial position, only lowering margins due to expected litigation costs in the future, thereby enabling Coloplast to provide high returns to shareholders, attracting further investments, as well as allocate funds for future growth prospects and expansion plans. The latter, is currently being exploited through the production facility in Costa Rica, which is expected to have a positive influence on margins and lead to slightly higher PPE and inventory levels.

7. Forecasting

In the following, the forecast assumptions for the value drivers will be established, based on the strategic and financial analyses. These can be seen in Appendix 18. Here, an explicit forecast period of 10 years is chosen, as Coloplast is still experiencing significantly higher growth than its expected long-term growth rate (Petersen & Plenborg, Valuation, 2012). Based on the forecast assumptions Coloplast's forecasted income statement, balance sheet and cash flow statement has been created, which can be viewed in Appendix 19. Here, it is, for simplicity, assumed that dividends is the residual of excess cash and that the cash impact takes place at the end of a financial year (Petersen & Plenborg, Forecasting, 2012).

7.1 Growth Drivers: Revenue Growth

Coloplast's revenue growth is influenced positively and negatively by many factors. The opportunities of increasing access to healthcare in emerging markets, a growing elderly population and an increase in the number of cancer and diabetes patients, all lead toward more potential customers for Coloplast which impacts revenue positively. Further, the low threat of substitution allows for higher returns than in other industries. Additionally, the internal competences built on closeness to the customers and the ability to adapt, while having constructed a broad, high quality product portfolio, have a positive impact on Coloplast's revenue. Notwithstanding, the threats of stringent government regulations and healthcare reforms and reimbursement, as well as high buyer power in the industry, can pressure prices and, therefore, limit growth significantly. In the long-run, earlier detection and cure, as well as surgical and medical advances will also impact growth negatively. Moreover, the heavy reliance on both the European markets as well as the hospitals' ability to advertise Coloplast's products could limit growth further. Lastly, the depleted innovation capability could threaten growth, however, the increased focus on innovation and R&D through the LEAD20 strategy appears to minimize this risk. The estimated growth in each of the business areas is elaborated on below.

7.1.1 Chronic Care: Ostomy and Continence Care

Coloplast's ostomy and continence care revenue is forecasted to increase to 10% and 9%, respectively, in 2018/19 to then decrease exponentially until the terminal period. This decrease is based on the factors explained above that negatively affect revenue. Especially reimbursement cuts and general regulation and reform pressure is significant in these business areas. Nonetheless, revenue growth does not decrease at that high a rate due to the factors that positively impact revenue growth outlined above, as well as the current rapid growth rate in the incontinence market and the fact that competition in these market segments has been identified as moderate. Subsequently, it is expected that Coloplast can maintain a higher growth rate in the ostomy and continence care business areas than the 2% commonly used.

7.1.2 Interventional Urology

Growth in the urology business area is currently larger than in any of the other business areas and it is not affected as much by reimbursement cuts and general reform pressure as the chronic care business area. Nonetheless, industry rivalry has been identified as high in this market segment, which significantly limits growth in the longer run. Therefore, after increasing to 11% in 2018/19, revenue growth in urology care is expected to decrease at a higher, exponential rate than the chronic care business areas. Subsequently, the growth rate in the terminal period will be commonly used 2%.

7.1.3 Wound and Skin Care

The revenue of the wound and skin care segment is expected to increase over the next two financial periods, despite the healthcare reforms in Greece that limit growth here. This increase, is mainly due to the rapid growth in the closing wound care segment. Notwithstanding, due to the high competition and the high threat of substitution in this industry segment, revenue growth is expected to decrease at a rapid, exponential pace from 2020/21, resulting in 2% growth in the terminal period, which is commonly used as a long-term growth rate.

7.1.4 Reported Growth

Reported growth is assumed to be equal to organic growth as factors influencing the difference in these are not possible to forecast. The influence of exchange rates is excluded due to the fact that these follow a random walk and, therefore, cannot be forecasted. Moreover, acquisitions are excluded as we cannot forecast when Coloplast will make such an investment and because we assume that Coloplast would pay the fair market value, wherefore growth might increase, but other financial items will be impacted to the same extent. Therefore, including acquisitions will not benefit the forecast (Koller, Goedhart, & Wessel, 2010).

7.2 Cost Drivers

7.2.1 Operating Costs

Total operation costs are a function of production costs, distribution costs, administrative expenses, R&D costs and other operating expenses, which are elaborated below.

Production costs

Production costs are expected to decrease slightly over the next two financial years due to lower restructuring costs. In 2020/21 they are expected to decrease further, by 2.5% relative to revenue, due to the completion of the production facility in Costa Rica. Hereafter, they will increase slightly as production is ramped up and due to normal operations and stringent government regulations. This impact is smaller than it could have been, due to low supplier power in the industry, keeping input costs down.

Distribution costs

Distribution costs are expected to increase over time as they include sales and marketing expenses. Coloplast continuously needs to invest to maintain, improve and build new relationships with, especially, hospitals, as it operates in an industry with high buyer power and are heavily reliant on the Hospital's ability to advertise Coloplast's products. Moreover, Coloplast is focusing on and targeting the individual users more through the strategy of closeness to the customer and the Coloplast Care Program, resulting in higher expenses. Nevertheless, the positive impact on revenue and decrease in sales and marketing efforts is expected to more than offset the costs of these investments. In addition, Coloplast's Broad, quality product portfolio and strong brand, provides significant publicity at low costs. Therefore, the increase in distribution costs over time is not as significant as it could be. Furthermore, distribution costs are impacted by the production facility in Costa Rica by -3% relative to revenue in 2020/21, wherefore they decrease by 1.5% relative to revenue that year and slightly less the following years.

Administrative expenses

Administrative expenses can be expected to increase over time due to stringent government regulations, especially as Coloplast enters more markets. New regulations need to be identified and implemented which is time consuming and costly. Nonetheless, Coloplast has shown an ability to adapt both to external factors and internal developments, which reduces administrative expenses. Subsequently, administrative expenses are forecasted to increase slightly over time. Furthermore, similar to production and distribution costs, administrative expenses are influenced by the new production facility in Costa Rica. Therefore, and countered by the slight increase explained above, administrative expenses are expected to drop by 8% relative to revenue in 2020/21 and by 10% in the following years.

Research & Development costs

R&D costs are also under pressure from stringent government regulations as this process is heavily regulated. Notwithstanding, Coloplast's R&D costs are only expected to be impacted slightly by this due to the ability to adapt. Rather R&D costs are impacted by the refocus on innovation and R&D, which is expected to increase costs further in 2018/19, as the LEAD20 strategy aims at R&D costs constituting almost 4% of revenue. Nevertheless, these increased costs are expected to lead to higher revenue as they aspire to improve Coloplast's innovation capability, which is especially important in an industry characterized by high buyer power.

Other net operating expenses

Other net operating expenses are forecasted at the average value of the historical period, namely -0.1%, as nothing indicates that these should develop differently in the future.

7.2.2 Special items

Special items cover legal costs and similar expenses relating to law suits. These expenses are included in the forecast, because it is expected that such litigations are part of Coloplast's normal operations, especially, due to its presence in the US. Special items are forecasted based on Average Competitor's¹⁹ average litigation and product liability costs in the historical period: 3.9% of revenue (Appendix 20). This seems appropriate if we look at Coloplast's historical special items due to litigation costs, taking into an account that it has a product liability insurance of DKK 500m, meaning that litigation costs per case are usually smaller than those of the transvaginal mesh case from the recent years.

7.2.3 Depreciation and Amortization

Depreciation as a percentage of PPE is forecasted at 14.2%, which is the average of the last three years. Amortization as a percentage of Intangible assets, decreases over time, as intangible assets move towards the value of goodwill, which is not amortized. This will be explained under investment drivers below.

7.2.4 Taxes on EBIT and Net financial Expenses

The marginal tax rate is 22% in Denmark currently. While stringent government regulations could mean a different tax rate in the future, there is no indication hereof. Therefore, this is the rate that will be used to calculate the tax shield on net financial expenses throughout the whole forecast period and terminal value.

¹⁹ Specific amounts for these items where only available for Bard & BD, Boston Scientific and Smith&Nephew, wherefore the average is built on these competitors.

Additionally, the marginal tax rate is used to calculate the corporation tax, as Coloplast' effective rate historically has been almost identical to the marginal rate.

7.3 Investment Drivers

7.3.1 Non-current assets

We assume a linear relationship between intangible and tangible assets as investments happen relatively frequently throughout the years.

Intangible assets will increase by the amount of additions to software and patents and other trademarks and decrease by the amortization, as we have excluded acquisitions from the forecast. The amount of additions to intangible assets has been approximately DKK 10m in recent years and we will forecast it as growing at the same rate as revenue until the terminal period. Total intangible assets will, therefore, constitute a decreasing percentage of revenue.

Property, plant and equipment has on average constituted 19.6% of revenue, and has not fluctuated significantly. Nonetheless, the new production facility in Costa Rica influences PPE. Subsequently, we estimate that PPE will increase in the years up the completion of the production site as well as slightly in the year it is finished. This increase in PPE relative to revenue, seems appropriate when comparing to Average Competitors, as their PPE constituted 21.9% of revenue in 2018.

Other non-current assets have constituted 2.9% of revenue the last two years. As there is no indication of changes in these assets, and only one year was significantly higher, this level will be used in the forecast.

7.3.2 Net working capital

Net working capital is the function of the current operating assets; inventories, trade receivables and other current assets, and the non-interest-bearing liabilities; other provisions, trade payables and other liabilities.

Current operating Assets

Inventories have been steady at 10.6% of revenue in the historical period, which is, therefore, the level that will be used for 2018/19 and 2019/20. After the production facility in Costa Rica is ready for use, however, inventories are expected to increase by 25% to then decrease by 8% in the following years. Further, trade receivables have constituted 17.8% of revenue on average in the historical period. Therefore, and because it is the same percentage that trade receivables constitute of revenue for Average Competitors, this level will be used in the forecast. Last, other current assets have amounted to an average of 4.8% in the historical period, which is the level we will keep in the future.

Non-interest-bearing liabilities

Other provisions have developed at a significant downward trend relative to revenue, and we, therefore, use the 2017/18 value in the forecast. Moreover, trade payables have been stable around 4.5% in the historical period. Comparing to the competitors BD and Bard (average: 6.4%), which are the only to list trade payables separate from other payables, this amount seems appropriate for the forecast. Lastly, other operating liabilities are forecasted at the average previous value, excluding 2015/16 which had significant higher provisions for the transvaginal mesh litigation.

7.4 Financing Drivers

For NIBD as a percentage of invested capital, we will use the average from the last two years of 21.4% in our forecast. While the level of NIBD has changed significantly throughout the historical period, the last two years are deemed as most representative for future levels. Here it might be more appropriate to follow the consensus estimates that believe debt will increase in the near future and then decrease. Nevertheless, as NIBD is so small and Coloplast has stated no intentions of changing it in the future, we will keep the average level from the last two years.

Net financial expenses include financial expenses and income as well as profit/loss on associates, which is 0 in the future. Net financial expenses are split into financial expenses based on the required return on debt, estimated in the next section, and other net financial expenses. The latter, has changed significantly in the historical period, which can mainly be attributed to the significant change in NIBD. Similarly, the last years are deemed as most representative, wherefore other net financial expenses are forecasted at 19.8%. In order to take a steady investment throughout the financial year into an account, the average NIBD will be used, when calculating net financial expenses (Petersen & Plenborg, Forecasting, 2012).

7.5 Subconclusion

The value drivers have been estimated in accordance with the findings of the strategic and financial analyses. Based on these, the forecasted income statement, balance sheet and cash flow statements have been constructed, which will lay the foundation for the following valuation. The estimated value drivers and their impact on important margins and ratios, as well as the final estimated value, will be examined and assessed in the discussion.

8. Valuation

Coloplast's value on November 1, 2018 will be estimated using the DCF valuation model based on the forecast assumptions introduced earlier. Before this can be done, however, the weighted average cost of capital used to discount the cash flows needs to be estimated. Moreover, the number of outstanding shares need to be determined, in order to find the value per share. The WACC and outstanding shares are estimated below.

8.1 WACC

The weighted average cost of capital will be determined by estimating its four building blocks; the required rate of return on equity and on debt, capital structure and the tax rate (see table 8.1 later in this section). The latter is the most straightforward, as the marginal tax rate from the forecast is used. The other items are determined below.

8.1.1 Required Rate of Return on Equity

The required rate of return on equity, estimated based on the CAPM model, is expected to be 6.48%. The individual components from the CAPM model are estimated below.

Risk Free Rate

The risk free rate of 1.58% has been estimated using the 10-year government bond average in the period between October 2008 and 2018 (Danmarks Statistik, 2019). While there have been examples where

government bonds have not actually been risk free, it is the best proxy we have (Petersen & Plenborg, Cost of Capital, 2012). Additionally, each cash flow should ideally be discounted using a government bond with a similar duration, however, this is difficult and time consuming, wherefore using a single yield to maturity is preferable (Petersen & Plenborg, Cost of Capital, 2012). Moreover, a 30-year bond might match cash flows better, nonetheless, these could suffer from illiquidity (Petersen & Plenborg, Cost of Capital, 2012).

Systematic Risk

The average of other analysts' estimates based on historical data is used in the estimation of Coloplast's systematic risk. It is 0.97 (Appendix 21). When using these different analyst's estimates for beta we try to minimize the weaknesses of the historical approach (Petersen & Plenborg, Cost of Capital, 2012). Furthermore, to not solely base our estimate on quantitative data but also consider Coloplast qualitative risk profile a fundamental analysis based on the strategic and financial analysis as well as a comparison with competitors is performed.

Based on the strategic analysis, Coloplast seems to face lower operating risks than the general market. Externally, while government regulations and reforms and the risk of technological advances threaten operations, this impact is only minor when comparing to the increasing possible customer base and similar opportunities. Strategically, the industry analysis demonstrated Coloplast's strong position in the market, only threatened by high buyer power. And, operationally, Coloplast heavily relies on the European Markets but is investing more in sales and marketing, decreasing this threat. Furthermore, based on the financial analysis, financial risks seem to be low as NWC is higher than competitors' and financial leverage is low. Moreover, NIBD consists mainly of pension liabilities, derivatives and current debt to other credit institutions, none of which seem to result in significant risks. Subsequently, the systematic risk based on fundamental factors is estimated at 0.9. Subsequently, a beta of 0.93 will be used in the estimation.

This beta seems appropriate when we compare it to those of competitors (Appendix 22). Here, the average beta is only 0.81, nonetheless, this is heavily affected by the low beta of the large competitor Smith&Nephew. Moreover, as Coloplast is a much smaller company than the competitors in the comparison, it is expected to be associated with higher risk. The higher beta, therefore, seems justified.

Market Risk

This thesis estimates the market risk premium based on an average of two estimates. First, Petersen & Plenborg (2012) find the average market premium in Europe used professors to be 5.3% (Petersen & Plenborg, Cost of Capital, 2012). Second, Nationalbanken estimates the market risk premium to be 5.2% based on the ex-post approach, using historical returns from 1970 to 2002 (Saabye, 2003). Subsequently, this thesis uses 5.25% as the market risk premium.

8.1.2 Required Rate of Return on NIBD

The required rate of return on NIBD is, besides the risk free rate and the tax rate, dependent on how safe of an investment Coloplast is, as this defines the credit spread. Petersen & Plenborg (2012) illustrate a credit spread interval for different credit ratings, which will be used to estimate the credit spread in this thesis (Petersen & Plenborg, Credit analysis, 2012). Coloplast is classified as a safe company to invest in, based on three reasons. Firstly, the strategic and financial analyses as well as the description of the operating, strategic and financial risks

above, indicate that Coloplast is a stable investment. Secondly, Ritzau Finans (2014) writes that Coloplast is extremely solid with good underlying profitability and moderate debt (Ritzau Finans, Seks C20'ere er ekstremt solide, 2014). Lastly, Coloplast's Altman Z-score is extremely high (see Appendix 23), indicating that Coloplast has an extremely low probability of going bankrupt (Petersen & Plenborg, Credit analysis, 2012). Subsequently, we take the average of the credit spread interval for AAA rated companies, resulting in a credit spread of 1.25% (Petersen & Plenborg, Credit analysis, 2012). Credit spreads tend to vary over time. Nonetheless, I will assume a constant credit spread as no significant changes in Coloplast's credit rating are assumed.

Subsequently, the required rate of return on NIBD that will be used in this thesis for all forecasted periods is 2.21%.

8.1.1 Capital Structure

Coloplast's capital structure will be estimated based on the iteration procedure explained in the scientific framework. The calculation is based on the assumption that the carrying value of NIBD corresponds to its market value (Minasyan, 2013). This provides us with the market value of equity for each forecasted period, which is needed for the final WACC calculation.

The resulting equity-to-value and debt-to-value ratios only vary slightly, and are 98.6% and 1.33%, respectively. The debt-to-value ratio is much smaller than that from the medical supplies industry²⁰, which is 7.4%, and even more significantly lower than that of Average and Median Competitors (Appendix 24). Nonetheless, the financial analysis has already demonstrated that Coloplast's capital structure varies from that of average Competitors due to the low levels of NIBD. Therefore, the estimated ratios and market value of equity for Coloplast, seem appropriate and will be used in the WACC calculation.

8.1.4 WACC

Table 8.1 shows an overview over the calculated WACC and its building blocks for the forecasted period and terminal period. The future WACC is higher than the WACC for the historical period (which on average is 5.5%), which can be attributed to the higher risk-free rate used in the forecast.

%	Forecasted Period										Terminal Period
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	
E/V	98.6	98.4	98.2	98.2	98.0	97.9	97.7	97.5	97.4	97.2	96.9
D/V	1.4	1.6	1.8	1.8	2.0	2.1	2.3	2.5	2.6	2.8	3.1
Tax	22	22	22	22	22	22	22	22	22	22	22
r_f	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
r_d	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21
RP	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25
r_e	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48
WACC	6.41%	6.40%	6.39%	6.39%	6.38%	6.38%	6.37%	6.36%	6.35%	6.34%	6.33%

Own Creation

²⁰ This is the industry that seems closest related to Coloplast presented in (Petersen & Plenborg, Cost of Capital, 2012, p. 248)

8.2 Outstanding shares

Coloplast's outstanding shares consist of 18,000 class A and 194,367 class B shares (Coloplast, Annual Report 2017-18, 2018). Of the latter, Coloplast owns 3,633 shares themselves, which are excluded from total outstanding shares, as dividend paid out for these will return to Coloplast. Dividends paid out does not vary for class A and B shares. However, class A shares hold 10 votes, whereas B shares hold only 1 vote per share. This could influence the value of the shares, leading to different share prices for class A and B shares. Additionally, changing ownership of class A shares requires the consent of the Board of Director. Due to limited information, it is assumed that the value for class A and B shares is identical. Subsequently, the number of outstanding shares used in this thesis for the calculation of the value per share is 208,734.

8.3 DCF Valuation

The DCF valuation of Coloplast is depicted in table 8.2, where the FCFF are discounted based on WACC to find the company's value. Then NIBD is subtracted to get the market value of equity, which is divided by the number of outstanding shares to find the value per share. The value per share on November 1, 2018, is, therefore, estimated at DKK 639.2.

DKKm	Forecasted Period										Terminal Period
	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	
FCFF	3,304	3,678	3,780	5,021	5,503	5,561	5,845	6,084	6,258	6,369	6,546
WACC	6.41%	6.40%	6.39%	6.39%	6.38%	6.38%	6.37%	6.36%	6.35%	6.34%	6.33%
Discount factor	0.940	0.883	0.830	0.780	0.733	0.689	0.648	0.609	0.573	0.539	
Growth											2.8%
PV FCFF	3,105	3,249	3,138	3,918	4,036	3,834	3,789	3,708	3,586	3,432	99,435
Valuation November 1, 2018											
PV of FCFF in forecast horizon				35,793.85							
PV of FCFF in terminal period				99,435.16							
Estimated enterprise value				135,229.02							
Less NIBD				(1,799.46)							
Estimated market value of Equity				133,429.56							
Outstanding Shares				208.73							
Value per share				639.23							
<i>Own Creation</i>											

9. Discussion

Coloplast's value per share has been estimated at DKK 632.2 on November 1, 2018. This is DKK 46.8 above the actual price on that date, which was DKK 592.4. The difference between the estimated and actual share price will be discussed in the following. First, the forecast assumptions and following valuation will be assessed, which includes a multiple analysis comparing Coloplast's estimated value to those of peers. Hereafter a sensitivity

analysis will be presented to see how small changes in important estimates impact the valuation. Last, a scenario analysis containing seven scenarios will be presented, in order to investigate why the estimated value differs from the actual value, questioning forecast and valuation assumptions made.

9.1 Assessment of the Forecast and Valuation

The accounting items and profitability ratios discussed and compared in the financial analysis, are presented for the forecasted and terminal period in Table 9.1. These, as well as the estimated WACC, will be evaluated and discussed below in order so see how realistic the forecast and following valuation appear to be. Here, a special focus is laid on the values in the terminal period, as the present value of the free cash flows from the firm for the terminal period constitute 73.6% of the total enterprise value.

Table 9.1 – Assessment of Forecast Assumptions

	Forecasted Period										Terminal Value
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	
Revenue Growth	9.0%	9.0%	8.7%	8.2%	7.6%	6.6%	5.6%	4.4%	3.5%	2.8%	2.8%
Total operating costs	63.4%	63.8%	62.4%	62.1%	61.9%	62.6%	63.2%	63.8%	64.4%	65.0%	65.0%
EBITDA margin	32.7%	32.3%	33.7%	34.0%	34.2%	33.5%	32.9%	32.3%	31.7%	31.1%	31.1%
EBIT margin	29.2%	28.8%	30.3%	30.7%	31.1%	30.4%	29.9%	29.3%	28.7%	28.1%	28.1%
NOPAT	22.5%	22.2%	23.3%	23.7%	23.9%	23.4%	23.0%	22.5%	22.1%	21.6%	21.6%
Net Income	20.7%	20.4%	21.6%	21.9%	22.3%	21.8%	21.4%	20.9%	20.5%	20.0%	20.0%
NWC	13.5%	13.5%	16.2%	15.1%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%
CapEx	5.2%	5.4%	4.9%	4.6%	4.5%	4.3%	4.1%	3.9%	3.7%	3.6%	3.6%
IC	49.9%	49.1%	50.7%	48.6%	46.9%	46.3%	45.8%	45.5%	45.2%	45.0%	44.8%
Profitability Analysis											
Financial leverage	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
NBC	16.5%	16.6%	16.4%	16.5%	16.8%	16.8%	16.7%	16.8%	16.9%	16.9%	16.9%
PM	22.5%	22.2%	23.3%	23.7%	23.9%	23.4%	23.0%	22.5%	22.1%	21.6%	21.6%

TRIC	2.00	2.02	2.00	2.02	2.10	2.15	2.17	2.19	2.21	2.22	2.23
ROIC	45.0%	44.8%	46.7%	47.7%	50.1%	50.3%	49.9%	49.4%	48.7%	47.9%	48.1%
the spread	28.5%	28.2%	30.3%	31.1%	33.3%	33.5%	33.2%	32.6%	31.9%	31.0%	31.2%
ROE	52.8%	52.5%	55.0%	56.1%	59.2%	59.4%	59.0%	58.3%	57.4%	56.4%	56.6%

Own creation based on forecast

9.1.1 Revenue Growth

Organic growth, as a function of growth in each business area, is forecasted to be 9% in the first forecast years and then decrease at an accelerating rate until reaching a terminal value of 2.8%. Coloplast estimates its annual organic growth to be between 7 and 9%, which is, also, in line with the positive developments in recent years and the consensus forecast. The terminal growth rate is, however, relatively high as GDP growth in Denmark is expected to be 1.64% in 2020 (OECD, Real GDP Forecast, n.d.). Nevertheless, the strategic and financial analyses indicate that Coloplast can maintain this growth, amongst others, due to a significant market share and only moderate competition in the industry.

9.1.2 Total Operating Costs

Coloplast's operating costs have been stable at a relatively low level of revenue compared to Average Competitor's in the historical period. This development continues throughout the forecast and terminal period, which is in line with the expectation that Coloplast will be able to maintain its cost advantage in the long-run. However, operating costs do constitute a slightly larger percentage of revenue in the terminal period despite the positive impact from the production facility in Costa Rica. This does not appear that strange, as factors from the strategic analysis, such as stringent government regulations and the heavy reliance on hospital's ability to advertise products can lead to an increase in costs. Furthermore, the production facility in Costa Rica seems to have an impact similar to the expected one, as operating costs relative to revenue decrease in 2020/21 and the following years by 2.2%, 0.5% and 0.4%, respectively. Subsequently, total operating costs from the forecast seem to develop as expected in the strategic and financial analysis.

9.1.3 EBITDA, EBIT, NOPAT and Net Income

Coloplast's EBITDA, EBIT, NOPAT and Net Income margin decrease in the first forecast period, mainly due to special items, which is an estimate of average expenses associated with litigation costs in the future. Here it might be more appropriate to have lower litigation costs in the first years, as Coloplast is currently not facing any new, large law suits, however, the impact of such a change is not expected to be significant. More on litigation expenses in the scenario analysis below. Furthermore, margins begin to increase with the completion of the production facility in Costa Rica as expected in the LEAD20 strategy. In the terminal period, margins are lower than any other time in the forecast, nonetheless, they are still high. One might question these high margins. Nevertheless, they are in line with the strategic and financial analysis. Furthermore, Coloplast targets an EBIT margin of 30%, which is what the forecast fluctuates around. In the Terminal period EBIT is slightly lower than this, namely 28.1%, which is more realistic than 30% in the long-run.

9.1.4 Net Working Capital

Net working capital increases in the first years of the forecast, most significantly in 2020/21 due to the production facility in Costa Rica. Hereafter, it decreases again, however, ending with a higher NWC of 14.1%,

than in the last financial year. This corresponds well to our expectation that Coloplast's liquidity health will remain well in the future.

9.1.5 Capital Expenditure

Coloplast's capital expenditure increases in the beginning of the forecast period and then reverts back to the original level. This is in line with the financial analysis, as an increase in connection with the new production facility in Costa Rica was expected and there should be no need for a high investment in PPE hereafter.

9.1.6 Invested Capital

IC relative to revenue decreases slightly throughout the forecast period mainly due to decreasing intangible assets. This is in line with the expectations of the financial analysis. If IC should move towards that of Average Competitors, assets would need to increase significantly, which would require substantial acquisitions. However, these are delimited in the analyses and valuation and are, moreover, not planned by Coloplast in the near future.

9.1.7 Profitability Analysis

Financial leverage and NBC remain at almost the same level as in the last financial years, which is to be expected as both NIBD and Net financial expenses are based on the last years. Further, TRIC increases slightly due to the decrease in IC. These items all develop in accordance with the expectations of the financial analysis. Notwithstanding, Coloplast's PM in the terminal period, while being 4%-points lower than the current level, is high compared to Average Competitors and ConvaTec's. Following the development in these, both ROIC, the spread and ROE have decreased slightly. Nevertheless, all remain high in the terminal period. This indicates that Coloplast is more profitable than Average Competitors. While the strategic and financial analysis indicate that Coloplast has a strong financial position, it is believed that ROE significantly overstates the profitability of Coloplast, due to the heavy reliance on TRIC. Subsequently, a significant increase in IC is required to lower ROE to the level of Average Competitors, which, as mentioned above, is unlikely to happen. The high ROE is, however, not believed to indicate that the forecast is unrealistic, as it is similar to the ROE from the consensus estimate (Appendix 16).

9.1.8 Weighted Average Cost of Capital

This thesis presents an average WACC of 6.37%, which is used to discount the FCFF in order to estimate the value of Coloplast. This WACC is based on theoretical assumptions as well as on the strategic and financial analysis. Notwithstanding, small adjustments in these assumptions could change the WACC rather drastically. Subsequently, it is important to compare the estimated WACC to other estimates of Coloplast's WACC or that of main competitors. The estimated WACC is, therefore, compared to two estimates of Coloplast's WACC and one estimate of ConvaTec's WACC.

Coloplast estimates the cost of capital to be 9% in the interventional urology business and to be 6% in the chronic care business area (Coloplast, Annual Report 2017-18, 2018). The cost of capital for the wound and skin care area is not estimated, however, to get a usable and comparable WACC, it is estimated based on the strategic analysis to be slightly higher than the cost of capital for the urology care area, due to higher associated uncertainty. The WACC based on Coloplast's annual report is, therefore, 6.94% (Appendix 25). As this WACC is evidently, slightly higher than the estimated WACC of this thesis, the latter might be too low. In addition, the

WACC for Coloplast estimated by the analyst Morningstar is 7.5% (Wang, 2018) and the WACC estimated for ConvaTec by the analyst UBS is 8% (UBS, 2018). These indicate that the estimated WACC of this thesis might be too low. Notwithstanding, the risk of ConvaTec is expected to be higher than that of Coloplast due to more earnings uncertainty due to, amongst other, ConvaTec's few years on the stock market (UBS, 2018). Therefore, its WACC should also be higher. The estimated WACC and its influence on the valuation will be, further, discussed in the sensitivity and scenario analysis below.

9.1.9 Multiple analysis

The multiple analysis is employed in order to compare the estimated value of Coloplast to the values its main competitors are traded at. While the multiple analysis is built on the fact that companies need to be truly comparable, this is not possible in the real world. Coloplast's main competitors previously used for benchmarking in this thesis will, therefore, also be used here. Differences in values which, amongst others, arise due to differences between the companies, will be considered when applying the analysis. Table 9.2 shows the EV/EBITDA and P/E (why these are chosen is explained in the scientific framework), as well as factors that can help explain these, of Coloplast and the main competitors. A complete table with all numbers on which these are based, can be found in Appendix 26.

	EV/EBITDA	P/E	EBITDA margin	EBITDA growth	Revenue Growth
Coloplast estimated	22.49	34.70	30.9%	24.4%	7.29%
BD	23.78	46.10	21.64%	13.25%	14.69%
Boston Scientific	21.80	30.90	15.73%	26.49%	6.58%
ConvaTec	10.90	19.40	22.22%	1.76%	4.87%
Mölnlycke *	16.00	-	30.33%	5.08%	6.06%
Smith&Nephew	14.40	25.60	27.11%	6.41%	5.82%
Average	17.38	24.40	23.41%	10.60%	7.60%
Median	16.00	25.60	22.22%	6.41%	6.06%
<i>* Using values from the financial analysis except for the EV/EBITDA value which is from the Investor 2018 Q4 report</i>					
<i>Own Creation based on the financial Analysis and (Thomson One Banker; Investor AB, Financial Report 2018 Q4, 2018)</i>					

The estimated value of Coloplast's EV/EBITDA is quite high compared to the average and median of main competitors, which puts it at a premium compared to peers. While this could indicate that the stock is overpriced and the estimated prospect of Coloplast are too optimistic, this premium is believed to be largely justified given the higher EBITDA margin and EBITDA growth relative to competitors. This is further supported by the fact that the EV/EBITDA is not significantly higher than that of competitors such as BD and Boston Scientific. Furthermore, Coloplast's P/E is also higher than that of Average Competitors, while still being close to that of BD and Boston Scientific. Here, there is a clear connection between revenue growth and P/E as the companies with higher revenue growth, such as Coloplast, are traded at a higher P/E multiples. In Conclusion, while Coloplast's multiples are within the range of those of competitors, it is traded at higher multiples than Average and Median

Competitors. This is, mainly, expected to be due to higher prospects than some of these competitors. This analysis, therefore, supports the valuation performed.

9.2. Sensitivity analysis

The DCF valuation model is based on a number of assumptions and estimates that carry higher levels of uncertainty the further in the future they are. Subsequently, it is interesting to investigate how sensitive the valuation is to changes in the underlying value drivers. Table 9.3 shows the estimated value if we change the terminal growth, the WACC, the EBITDA margin or the forecast growth by one percentage point in either direction, as well as the new EV/EBITDA and P/E multiples.

	Value		Change		EV/EBITDA		P/E	
	-1% point	+1% point						
Terminal growth	535.57	816.45	(16.2%)	27.7%	18.89	28.65	29.07	44.32
WACC	903.33	492.61	41.3%	(22.9%)	31.66	17.40	49.04	26.74
EBITDA-margin	615.90	663.94	(3.7%)	3.9%	21.68	23.35	33.44	36.04
Forecast growth*	585.57	691.74	(8.4%)	8.2%	20.63	24.32	31.79	37.55

Own Creation

The sensitivity analysis shows that the value of Coloplast is most sensitive to small changes in the WACC and the terminal growth rate and the least sensitive to changes in the EBITDA margin. This is also evident in the new EV/EBITDA and P/E multiples, which change most significantly with terminal growth and the WACC, and only slightly with the EBITDA margin. Notwithstanding, the small change in the EBITDA-margin still influences the value by almost +4%. The analysis, further, shows that the valuation is more sensitive to changes in the terminal growth rate than the forecasted growth rate. This is due to the fact that the present value of the free cash flows from the firm for the terminal period constitute a significant larger part of the enterprise value, as aforementioned. Therefore, the value of Coloplast changes by -16% or 28% relative to the estimated value, if the terminal growth rate is decreased or increased by 1%-point. Nonetheless, changing the growth rate by +-1%-point in the forecast period also impacts the value quite a lot, as it decreases/increases by more than 8% relative to the estimated value. The impact changes in the estimates have on the value will be investigated in more detail in the scenario analysis below.

9.3 Scenario Analysis

In the following, seven scenarios will be presented in order to investigate how a change in a value driver or in WACC impacts the estimated value. An overview of the scenarios can be seen in table 9.4. The first five are more real life example of specific scenarios that affect the forecast in a certain direction, to see how this will impact the estimated share value relative to the actual value. The last two will base the valuation on a less theoretically estimated WACC. This is especially interesting to look at, as the sensitivity analysis shows that the valuation is very sensitive to changes in the WACC, which, at the same time, is very difficult to estimate. Therefore, it also

allows us to see how realistic the forecast is when applying these WACCs. Here it is important to note, that the value drivers and WACC that are not adjusted in the scenario, are not assumed to be representative for the expectations in the market. Rather, the idea is to examine how specific value drivers and the WACC impact the estimated value relative to the actual value, to identify differences in the expectations relative to the market.

Table 9.4 – Overview of scenario Analysis								
	Value /Share	Growth* <i>Forecast period</i>	Growth <i>Terminal period</i>	WACC*	EBITDA margin* <i>Forecast period</i>	EBITDA margin <i>Terminal period</i>	EV/ EBITDA	P/E
Forecasted	639.2	0.1	2.8%	6.37%	32.9%	31.1%	22.49	34.70
Actual	592.4						20.87	32.16
Scenario 1 <i>Zero Debt</i>	615.4	6.54%	2.8%	6.48%	32.9%	31.1%	21.67	33.41
Scenario 2 <i>CEO Change</i>	598.7	6.54%	2.8%	6.61%	32.9%	31.1%	21.09	32.50
Scenario 3 <i>Litigation Costs</i>	569.1	6.54%	2.8%	6.36%	29.9%	28.1%	20.06	30.89
Scenario 4 <i>Cost Advantage</i>	434.4	6.54%	2.8%	6.32%	27.4%	21.1%	15.38	23.58
Scenario 5 <i>Low Growth</i>	478.6	4.55%	2.0%	6.35%	32.9%	31.1%	16.92	25.98
Scenario 6.1 <i>WACC Coloplast</i>	543.2	6.54%	2.8%	6.94%	32.9%	28.1%	19.16	29.49
Scenario 6.2 <i>WACC Coloplast Changed growth</i>	592.4	6.88%	3.1%	6.94%	32.9%	31.1%	20.87	32.16
Scenario 6.3 <i>WACC Coloplast Changed EBITDA</i>	592.4	6.54%	2.8%	6.94%	35.1%	33.5%	20.87	32.16
Scenario 7.1 <i>WACC Analyst</i>	480.5	6.54%	2.8%	7.46%	32.9%	32.7%	16.98	26.09
Scenario 7.2 <i>WACC Analyst Changed growth</i>	592.40	7.41%	3.7%	7.46%	32.9%	32.7%	20.87	32.16
Scenario 7.3 <i>WACC Analyst Changed EBITDA</i>	592.40	6.54%	2.8%	7.46%	39.0%	37.2%	20.87	32.16
<i>* Average of the forecast period and for WACC also including the terminal period</i>								
<i>Own Creation</i>								

9.3.1 Scenario 1 – NIBD = 0 i.e. WACC = r_e

Coloplast is not known for having much debt and its debt-to-value ratio in 2017/18 is only 1.4%. Therefore, investors might simply look at Coloplast as if it had no debt²¹. We will do the same, setting NIBD = 0 and, therefore WACC = r_e , to see how the valuation is affected.

The value estimated based on this zero-debt scenario is closer to the actual value than the original estimated value, as can be seen in table 9.4. Subsequently, the EV/EBITDA and P/E multiples are also slightly lower, though still above those of competitors. This is not strange as the prospects of the firm have not changed. This scenario could, therefore, be part of the explanation for why the estimated prices differs from the actual price.

9.3.2 Scenario 2 - CEO change scenario

On November 1, 2018, the date for the valuation, Coloplast also announced that Lars Rasmussen stepped down as Coloplast's CEO and that Kristian Villumsen would take his place. In the forecast it was assumed that this change would not affect the value as the new CEO should have the same value-increasing intensions as the previous CEO. Notwithstanding, investors might see this announcement differently which could explain the drop in the stock price on that day (see Appendix 27). The change in the CEO could be associated with more risk, thereby increasing the required return on equity. To see if this could explain some of the difference between the estimated and the actual value, we will increase the systematic risk slightly above the average analyst estimate (see Appendix 21) to 0.98, which increases the cost of equity to 6.73%.

The value based on this lower systematic risk scenario is lower than the estimated value and, therefore, much closer to the actual value. This is to be expected when the cost of capital increases. Subsequently, the higher uncertainty and, therefore, risk associated with a new CEO, could explain why the stock price dropped on the day of the announcement, despite the positive financial result that were published on the same date. The EV/EBITDA multiplier and P/E multiplier, while being lower than for the estimated value, still indicate higher prospects for Coloplast than Average competitors.

9.3.3 Scenario 3 - Higher Litigation Costs

Coloplast has been facing a number of law suits and patent cases which have resulted in high litigation costs. Especially its increasing presence in the US is likely to lead to higher costs in the future. In the forecast an estimation of future litigation costs has been made based on the average litigation costs relative to revenue for the main competitors in the historical period. Notwithstanding, investors might expect Coloplast to face more severe law suits in the future, similar to the transvaginal law suits. Subsequently, litigation costs should reflect the level of revenue they have constituted for Coloplast over the historical period. This will be investigated by increasing special items from the competitor average; 3.9%, to the average of Coloplast's historical period; 6.9%.

The estimated value based on this scenario is lower than the actual price, and, therefore, much lower than the estimated value. This is to be expected as the increased litigation costs reduce the EBITDA margin by 3%-point, which in the sensitivity analysis was shown to impact the value quite substantially. The EV/EBITDA and P/E multiples also reflect these higher costs by decreasing, nonetheless, they are still above the average of

²¹ This is actually the case in the report from Morningstar, where the WACC equals the required return on equity

competitors, indicating that these higher costs do not impact Coloplast's valuation enough to lower its prospect below those of average competitors.

9.3.4 Scenario 4 – lose cost advantage

In the financial analysis, a cost advantage of 10%-points has been identified relative to Average Competitors. Based on the strategic and financial analysis it was assessed that Coloplast would be able to maintain this cost advantage in the future. Notwithstanding, it would be interesting to see how the valuation of Coloplast and the EV/EBITDA and P/E multiples are affected, if it could not maintain this cost advantage in the terminal period. To do this we increase total costs by 1% point per year, until the costs are 10%-points higher in the final forecast and terminal period.

The adjustment of the level of operating costs relative to revenue, affects the value of Coloplast significantly, as can be seen in table 9.4. The EV/EBITDA and P/E multiple confirm the scenario, as they, contrary to scenario 3, are now very close to the Average and Median Competitors. This means that Coloplast's prospects are close to that of Average Competitors in this scenario, which makes sense as the EBITDA margin moves towards those of Average Competitors. We see the same if we look at the resulting ROIC and ROE for this scenario which are 31% and 35% respectively. These profitability ratios are much lower than those that were calculated based on the forecast earlier, and much closer to those of Average Competitors. While the price is much below the actual value, we cannot conclude that investors do not expect Coloplast to lose its cost advantage, as, as explained above, other errors in the forecast and estimation of WACC might counter some of this effect. Nonetheless, based on this estimated value and the actual value, it is unlikely that the market expects Coloplast's cost advantage to erode completely.

9.3.5 Scenario 5 – Growth does worse than expected

The sensitivity analysis demonstrates that the valuation is quite sensitive to changes in both the terminal and forecast growth. However, it is not very realistic that only one of these will change significantly. This scenario will, therefore, assume that total growth does not increase in the coming financial years, but decreases exponentially until reaching 2% in the terminal period. 2% as the terminal growth rate is also used by Coloplast in its impairment test, as well as by the main competitor ConvaTec. It therefore appears to be a good terminal target growth rate for this scenario.

The estimated value based on this lower growth scenario is significantly lower than the actual price and the estimated value. Nonetheless, as explained above, this does not mean that investors do not expect this to occur as that would claim that the rest of my forecast and the WACC is correct. However, this significant drop, as well as the consensus presented in Appendix 16, indicates that the markets prospects are more optimistic for Coloplast, at least in the short run. Nonetheless, the EV/EBITDA and P/E multiples now lay fairly close to the average and median of competitors, indicating that this value assumes that they have the same prospects. Moreover, if we compare the estimated value based on this scenario with that of scenario 4, we see that it impacts the value of Coloplast more to lose the cost advantage than having a significant lower growth, all else being equal. This again highlights the importance of the cost advantage to its value as well as future position in the market.

9.3.6 Scenario 6 & 7 – WACC

The sensitivity analysis demonstrated that the valuation is most sensitive to small changes in the WACC. Therefore, and based on the above discussion of the appropriateness of the theoretical WACC used in the valuation, two scenarios with the WACC from the annual report and Morningstar's estimation will be presented. This is done, not as much to demonstrate how much this would cause the value of Coloplast to fall, but more to look at how realistic the forecast is compared to the market value, based on less theoretical WACCs. Here, the growth rate and EBITDA-margin will be adjusted to get the actual market value. The rest of the forecast is, here, not assumed to be correct, rather this exercise is performed in order to see, how much the forecast needs to be adjusted to reflect the market price.

Scenario 6 – Coloplast's WACC

The estimated value based on the slightly higher WACC of 6.94% from the annual report is lower than the actual share price and, therefore, quite a lot lower than the estimated value (scenario 6.1 in Table 9.4). This could, as explained above, indicate that my WACC is too low. Moreover, if we assume that Coloplast's WACC is the correct WACC, my forecast is too pessimistic, as this scenario resulted in a price lower than the actual value. To get the actual value, the forecasted growth in the forecast period and terminal period needs to be increased by slightly above 0.34%-points (Scenario 6.2 in Table 9.4), or the EBITDA-margin needs to increase by almost 2.4%-point (Scenario 6.3 in Table 9.4) or a combination of these. This, again, shows that a more optimistic forecast is necessary to arrive at the actual value with this WACC.

Scenario 7 – Morningstar's WACC

The estimated value based on the higher WACC of 7.46% from Morningstar presented above, is significantly lower than the actual share price and, therefore, also lower than the estimated value (scenario 7.1 in Table 9.4). As explained above, this could indicate that my WACC is much too low, however, this would also indicate that Coloplast estimates its WACC too low, or that the wound and skin care business area is associated with even more risk than I have estimated. If we assume that Morningstar's estimated WACC is correct, the forecast assumptions made in this thesis are, even more than in scenario 6, too pessimistic. To get the actual value, the forecasted growth in the forecast period and terminal period needs to be increased by slightly less than 0.9%-points (Scenario 7.2 in Table 9.4), or the EBITDA-margin needs to increase by more than 6% (Scenario 7.3 in Table 9.4) or a combination of these. This, again, shows that a significantly more optimistic forecast is necessary to arrive at the actual value with this WACC.

9.4 Subconclusion

The assessment of the forecast and valuation showed that, while multiples, margins and profitability ratios are significantly above those of Average Competitors, these and the other forecast assumptions appear to be within reason, based on the strategic and financial analysis. Further, the sensitivity analysis showed that the valuation is especially sensitive to changes in the WACC and the terminal growth rate, but also small changes in the forecast growth and EBITDA-margin affect the value considerably. Additionally, the scenario analysis showed that investors might value Coloplast as if it had zero debt, require a higher return on equity due to the change of CEO as well as that they either have more pessimistic expectations for Coloplast's future, or assume a higher cost on capital. The latter, has been identified as a likely scenario, as both Coloplast's own estimated WACC,

Morningstar's estimated WACC and the WACC estimated for ConvaTec, are significantly higher than the estimated WACC of this thesis. If this is the case, the forecast of this thesis is, actually, too pessimistic and investors might, therefore, actually expect higher growth or EBITDA-margins in the future.

10. Conclusion

The aim of this thesis was to estimate the value of Coloplast A/S on November 1, 2018, based on strategic and financial analyses and a DCF valuation. Additionally, it was investigated to what extent variations of the forecasted value drivers or valuation assumptions influence the estimated value in order to help explain the difference between this and the actual market value.

Three strategic analyses were conducted in order to identify key opportunities, threats, strengths and weaknesses which were illustrated in a SWOT analysis. Firstly, the PEST analysis identified that Coloplast's operations are influenced both negatively and positively by numerous political, economic, socio-cultural and technological factors. Especially, the increase in the general and elderly population, as well as an increase in the number of cases of cancer and diabetes have a positive impact on revenues. On the other hand, stringent government regulations, pricing reforms and reimbursement cuts, law suits as well as technological advances and surgical and medical trends impact Coloplast's business negatively. Second, the medical devices and supplies industry, which is characterized by high buyer power, moderate threat of entry, low risk of substitution and supplier power as well as moderate industry rivalry, though high in the interventional urology and wound and skin care market segments, highlights the importance of focusing the strategy on the customers as well as reducing production costs. Last, the internal analysis, though from an outsider perspective, found that the general firm infrastructure supports a dynamic market due to Coloplast's ability to adapt quickly to new market conditions, customer needs and regulations. In addition, the LEAD20 strategy works towards increased efficiency of production as well as works towards improving its R&D process and relationships with customers. Both of which, were identified as important in the industry analysis.

The financial analysis consisted of an examination of Coloplast's historical accounting items and development and a DuPont profitability analysis relative to competitors as well as an analysis of previous production facilities built by Coloplast and some competitors. These found that Coloplast has a significant cost advantage relative to competitors, which is expected to be kept in the future, though negatively impacted by stringent government regulations and litigation costs, and positively influenced by the production facility in Costa Rica. The latter is also expected to lead to higher PPE and inventory levels. Subsequently, Coloplast's profitability measures were also significantly higher than competitors'.

Based on the strategic and financial analyses Coloplast's growth, cost, investment and financing value drivers were forecasted, resulting in a forecasted income statement, balance sheet and cash flow statement. These, together with a largely theoretically estimated WACC, laid the foundation for the valuation that estimated Coloplast's value at DKK 639.2 per share on November 1, 2018, which is DKK 46.8 higher than the actual value of DKK 592.4.

The assessment of the forecast and valuation found that the forecast is not unrealistic based on key value drivers, margins and ratios, when considering the strategic and financial analyses, despite the fact that ROE and ROIC appear high. The latter seem to be overstated, not because of a too optimistic forecast, but due to Coloplast's low IC and, therefore, high TRIC, relative to competitors. Further, Coloplast's EV/EBITDA and P/E

multiples are higher relative to Average and Median competitors. This is, mainly, expected to be due to higher future prospect than some of these. Additionally, a sensitivity analysis and scenario analyses were performed. These found that investors might see Coloplast as having zero debt, that they require a higher return on equity due to the change in CEO and that they might expect a somewhat lower growth rate or an EBITDA margin closer to that of competitors. Nevertheless, these scenarios all assume that the estimated WACC is almost correct. A comparison with other estimates of Coloplast's WACC and an estimate of ConvaTec's WACC, indicates that the WACC of this thesis might be too low. This is important as the valuation was found to be most sensitive to changes in the WACC. In line with this, it was found that the forecast is too pessimistic instead of optimistic if a higher WACC is assumed. Subsequently, the discussion indicates that investors might expect zero debt, a higher cost of capital both generally and due to the announcement of a new CEO on the valuation date and, therefore, most likely also expect higher growth or EBITDA margins in the future.

11. Further Research

During the research process, delimitations were employed that somewhat hinder the extent and usability of the analyses. Subsequently, further research and analyses could be conducted in order to improve the forecast and valuation. First, the strategic analysis could be expanded to examine the key opportunities and threats of each business area and geographical market individually, which due to limited time and space as well as availability of data has only been possible to some extent in this thesis. Second, internal data could be used helping the analyses and forecast. The internal strategic analysis could be improved as resources and capabilities that constitute a competitive advantage could more easily be identified in order to support the forecasted value drivers. Further, it would be possible to conduct financial analyses and forecast based on the individual business areas and geographical markets. Moreover, a WACC could be estimated for each business area, providing a more realistic valuation as well as allowing one to see how much each business area contributes to the overall value of the firm. Nevertheless, the market value is supposed to reflect only publicly available data, which means that internal data could bias the outcome when aiming at estimating market expectations. Third, primary data collection could be conducted. Questionnaire, interviews or focus groups with managers or employees both in Denmark and abroad, would improve, especially, the internal analysis with regards to the organizational culture and human resource management. Further, opinions and preferences from all customer groups could be investigated in order to assess Coloplast's standing in the market. This has not been possible due to the limited resources and scope of the thesis. Forth, more extensive benchmarking, possibly also for each business area, could improve the financial analysis and forecast. Here, internal data from competitors, especially those that do not have available public annual reports, could be used, or other competitors from the industry or market segments could be used in the Average and Median competitors' calculation. This has, due to the limited time and scope of this thesis not been possible. Last, it could benefit the analyses and discussion of this thesis to look at financial and market data beyond the date for the valuation. Here, the development of Coloplast's financials and the stock price could be compared to the valuation and discussion, which could help explain the difference between the estimated and market value as well as lead to improved future valuations.

Bibliography

- AHRMM. (2017). *Cost, Quality, and Outcomes Leading Practice: Leading Home Health Organization Provides High Quality Ostomy Care, at a Minimum Average of 40 Percent Lower Cost, Through Product Formulary Standardization*. Chicago: AHRM. Retrieved from <http://www.ahrmm.org/cqo-movement/files/leading-practices/coloplast-cqo-leading-practice-070818.pdf>
- Amaro, S. (2018, May 09). Argentina looks to be headed for another economic storm. *CNBC International*. Retrieved from <https://www.cnbc.com/2018/05/09/argentina-looks-be-headed-for-another-economic-storm.html>
- Andersen, H. (2018, June 14). Sådan måler vi de 140 virksomheders image. *Berlingske Business*. Retrieved from <https://www.berlingske.dk/virksomheder/saadan-maaler-vi-de-140-virksomheders-image-0>
- Andersen, P. (2013, August 26). Proces Specialist, Mechanichs at Coloplast. (C. S. Brandt, Interviewer) Retrieved from http://studenttheses.cbs.dk/xmlui/bitstream/handle/10417/4446/christian_salmon_brandt.pdf?sequence=1
- Arentoft, H. (2010, March 22). Virksomheder: Coloplast. *Berlingske*. Retrieved from <https://www.berlingske.dk/virksomheder/coloplast>
- Barua, A. (2018, December 19). *Brazil: New President, old economic challenges*. Retrieved from Deloitte: <https://www2.deloitte.com/insights/us/en/economy/americas/brazil-economic-outlook.html>
- Becton Dickinson. (2014). *Annual Report 2014*. Becton Dickinson.
- Becton Dickinson. (2015). *Annual Report 2015*. Becton Dickinson.
- Becton Dickinson. (2016). *Annual Report 2016*. Becton Dickinson.
- Becton Dickinson. (2017). *Annual Report 2017*. Becton Dickinson.
- Becton Dickinson. (2018). *Annual Report 2018*. New York: Becton Dickinson.
- Becton Dickinson. (n.d.). *Company*. Retrieved March 26, 2019, from Becton Dickinson: <https://www.bd.com/en-us/company>
- Becton Dickison. (2009). *Annual Report 2009*. Becton Dickison.
- Becton Dickison. (2010). *Annual Report 2010*. Becton Dickison.
- Becton Dickison. (2011). *Annual Report 2011*. Becton Dickison.
- Becton Dickison. (2012). *Annual Report 2012*. Becton Dickison.
- Berlingske Media A/S. (2012, May 25). Høj Oliepris og Lav dollar rammer indtjeningen i danske virksomheder. *Berlingske*. Retrieved from Berlingske.
- Berrisford, C., & Lopez, S. (2018). *Longer Term Investments - Emerging Market Healthcare*. Zurich: UBS. Retrieved from

<https://www.ubs.com/content/dam/WealthManagementAmericas/documents/emerging-market-healthcare.pdf>

Bessant, J., Francis, D., & Thesmer, J. (2004). *Managing Innovation within Coloplast*. InnovationPortal. Retrieved from <http://www.innovation-portal.info/wp-content/uploads/Coloplastcasestudybasicversion.pdf>

Boston Scientific. (2017). *Annual report 2017*. Boston: Boston Scientific.

Boston Scientific. (n.d.). *About Us*. Retrieved March 27, 2019, from Boston Scientific: <http://www.bostonscientific.com/en-US/about-us.html>

Boston Scientific Corp. (2015). *Annual Report 2015*. Boston Scientific Corp.

Boston Scientific Corp. (2019). *Annual Report 2018*. Boston: Boston Scientific Group.

Boston Scientific Group. (2019). *Annual Report 2018*. Boston: Boston Scientific Group.

Brahe Design. (n.d.). *Medical Coloplast*. Retrieved February 25, 2019, from Brahe Design: <http://www.brahe-design.dk/medical/coloplast.html>

Brand Finance. (2018). *Denmark 50 2018*. London: The Brand Finance Group.

Brandt, S. (2014, July 09). Danish firm to pay Minneapolis \$600,000 for missing job target. *StartTribune*. Retrieved from <http://www.startribune.com/danish-firm-to-pay-minneapolis-600-000-for-missing-jobs-target/266530621/>

Brok-Kristensen, M. (2015, April 1). *The surprising truth about succeeding with innovation*. Retrieved from MedTech Views: <http://www.medtechviews.eu/article/surprising-truth-about-succeeding-innovation>

C.R. Bard. (2014). *Annual Report 2014*. C.R. Bard.

C.R. Bard. (2015). *Annual Report 2015*. C.R. Bard.

C.R. Bard. (2016). *Annual Report 2016*. New Jersey: C.R. Bard.

Cancer Research UK. (2017). *What is cancer?* Retrieved February 06, 2019, from Cancer Research UK: <https://www.cancerresearchuk.org/about-cancer/what-is-cancer>

Cherkasova, A., & McLees, O. (2018, February 05). *Russia's Political and Economic Climate*. Retrieved from ControlRisks: <https://www.controlrisks.com/our-thinking/insights/newsletters/russia-issue-13-february-2018/lessons-from-januarys-gaidar-forum>

Clements. (n.d.). *The Most Litigious Countries in the World*. Retrieved January 23, 2019, from Clements: <https://www.clements.com/resources/articles/The-Most-Litigious-Countries-in-the-World>

CNBC. (n.d.). *Coloplast A/S*. Retrieved March 15, 2019, from CNBC: <https://www.cnbc.com/quotes/?symbol=COLO.B-DK>

Collins, S. (2015, November 19). *What Investors Should Know About the US Medical Device Industry*. Retrieved from Market Realist: <https://marketrealist.com/2015/11/medical-device-approval-processes-major-markets>

Coloplast. (2001). *Annual Report 2000/2001*. Humlebæk: Coloplast.

Coloplast. (2002). *Annual Report 2001/2002*. Humlebæk: Coloplast.

Coloplast. (2003). *Annual Report 2002/03*. Humlebæk: Coloplast.

Coloplast. (2006). *Annual Report 2005/06*. Humlebæk: Coloplast.

Coloplast. (2007). *Annual Report 2006/07*. Humlebæk: Coloplast.

Coloplast. (2007). *Annual Report 2006/7*. Humlebæk: Coloplast A/S.

Coloplast. (2007, November 2). *New Factory in China*. Retrieved from Coloplast: https://www.coloplast.com/press/press/news--press-release-archive/20071/#section=New-factory-in-China_8071

Coloplast. (2008). *Annual Report 2007/08*. Humlebæk: Coloplast.

Coloplast. (2009). *Annual Report 2008/9*. Humlebæk: Coloplast A/S.

Coloplast. (2012). *Diabetic foot ulcers - prevention and treatment*. Coloplast A/S.

Coloplast. (2012). *Leading Intimate Healthcare 2011/12*. Humlebæk: Coloplast A/S.

Coloplast. (2013). *Annual Report 2012/13*. Humlebæk: Coloplast A/S.

Coloplast. (2015, August 17). *Patient survey Rates Coloplast Best in Corporate Reputation for the Fourth Straight Year*. Retrieved from Cision: <https://www.prnewswire.com/news-releases/patient-survey-rates-coloplast-best-in-corporate-reputation-for-the-fourth-straight-year-300128697.html>

Coloplast. (2016). *Annual Report 2015/16*. Humlebæk: Coloplast A/S.

Coloplast. (2016). *Leading Intimate Healthcare 2015/16*. Humlebæk: Coloplast A/S.

Coloplast. (2018). *Annual Report 2017-18*. Humlebæk: Coloplast A/S.

Coloplast. (2018, December 7). *Coloplast.com*. Retrieved from Coloplast: <https://www.coloplast.com/>

Coloplast. (2018). *Corporate Responsibility Report 2017/18*. Humlebæk: Coloplast A/S.

Coloplast. (2018). *Financial outlook*. Humlebæk: Coloplast A/S.

Coloplast. (2018). *Leading intimate healthcare H1 2017/18*. Coloplast A/S.

Coloplast. (2018). *Leading intimate healthcare H2 2017/18*. Humlebæk: Coloplast A/S.

- Coloplast. (2018, November 01). *News and press releases: Announcement No. 08/2018*. Retrieved from Coloplast: https://www.coloplast.com/press/press/2018/#section=Lars-Rasmussen-resigns-his-position-as-CEO-of-Coloplast-A%2fS_457012
- Coloplast. (2018). *So you can be you - Corporate Brochure 2017/18*. Humlebæk: Coloplast A/S.
- Coloplast. (n.d.). *Annual Reports*. Retrieved April 01, 2019, from Coloplast: <https://www.coloplast.com/investor-relations/annual-reports/>
- ConvaTec. (2016). *Annual Report 2016*. ConvaTec.
- ConvaTec. (2017). *Annual report 2017*. Reading: ConvaTec Group.
- ConvaTec. (2018). *Annual Report 2018*. ConvaTec.
- ConvaTec. (n.d.). *About Us: Company Overview*. Retrieved March 26, 2019, from ConvaTec Group: <https://www.convatecgroup.com/about-us/company-overview/>
- Crowe, F. E., & Doran, R. M. (1992). Cognitive Structure. In F. E. Crowe, & R. M. Doran, *Collected Works of Bernard Lonergan* (pp. 204-221). Toronto Press.
- Danish Digital Award. (n.d.). *Coloplast Care*. Retrieved February 25, 2019, from Danish Digital Award: <https://danishdigitalaward.dk/projekt/coloplast-care/>
- Danmarks Nationalbank. (n.d.). *Exchange Rates*. Retrieved January 28, 2019, from Danmarks Nationalbank: http://www.nationalbanken.dk/en/statistics/exchange_rates/Pages/default.aspx
- Danmarks Statistik. (2019). *MPK3: Rentesatser, ultimo (PCT P.A.) Efter Type*. Retrieved April 09, 2019, from Danmarks Statistik: <https://www.statbank.dk/statbank5a/SelectVarVal/Define.asp?Maintable=MPK3&PLanguage=0>
- DaVita. (n.d.). *Diabetes: Definition, Causes and Symptoms*. Retrieved February 06, 2019, from DaVita: <https://www.davita.com/education/kidney-disease/risk-factors/diabetes>
- Department of Justice. (2016). *Byram Healthcare and Hollister, Inc. to pay \$20.9 Million to Resolve Kickback Allegations*. Washington DC: The United States Department of Justice.
- DHL. (n.d.). *Brændstoffillæg*. Retrieved February 01, 2019, from DHL: https://www.dhl.dk/da/express/shipping/forsendelsesraadgivning/express_olietillaeg_eu.html
- Draper, M. (2016). *US Healthcare System and Reimbursement*. Humlebæk: Coloplast A/S.
- FedEx. (n.d.). *Brændstoffillæg*. Retrieved February 01, 2019, from FedEx: <https://www.fedex.com/da-dk/shipping/surcharges.html>
- Financial Times. (n.d.). *Coloplast A/S*. Retrieved March 15, 2019, from Financial Times: <https://markets.ft.com/data/equities/tearsheet/summary?s=COLO%20B:CPH>
- Flyvbjerg, B. (2001). Context Counts. In B. Flyvbjerg, *Making Social Science Matter* (pp. 38-49). Cambridge University Press.

- Forbes Media. (2018, June 6). *#328 Coloplast*. Retrieved from Forbes: <https://www.forbes.com/companies/coloplast/#798261dd17db>
- Forbes Media. (n.d.). *Global 2000: Best Regarded Companies*. Retrieved February 20, 2019, from Forbes: <https://www.forbes.com/top-regarded-companies/list/6/#tab:rank>
- Forbes Media. (n.d.). *Global 2000: World's Best Employers*. Retrieved February 20, 2019, from Forbes: <https://www.forbes.com/world-best-employers/list/11/#tab:rank>
- Forbes Media. (n.d.). *World's most innovative Companies*. Retrieved February 22, 2019, from Ranking The Brands: <https://www.rankingthebrands.com/The-Brand-Rankings.aspx?rankingID=265&year=1203>
- Fowler, J. (2013, January 15). *How Corporate Culture Affects Your Bottom Line*. Retrieved from Investopedia: <https://www.investopedia.com/financial-edge/0113/how-corporate-culture-affects-your-bottom-line.aspx>
- French Ministry of Health. (2018, February 26). Tariffs for Healthcare reimbursement in France 2018. France: Capio AB. Retrieved from <https://capio.com/en/media/newsroom/press-releases/2018/tariffs-for-healthcare-reimbursement-in-france-2018/>
- Gaál, B. (2018, June 4). Coloplast completes third phase of factory in Nyírbátor. *Budapest Business Journal*. Retrieved from https://bbj.hu/business/coloplast-completes-third-phase-of-factory-in-nyirbator_150223
- Ghuri, P. (2005). Designing and Conducting Case Studies in International Business Research. In R. Marschan-Piekkari, & C. Welch, *Handbook of Qualitative Research for International Business* (pp. 109-122). Edward Elgar Pub.
- GLS. (n.d.). *Dieseltillæg*. Retrieved February 01, 2019, from GLS: <https://gls-group.eu/DK/da/dieseltillaeg>
- Grant, R. M. (2013). *Contemporary Strategy Analysis* (8th ed.). Edinburgh: John Wiley and Sons.
- Grant, R. M. (2016). *Contemporary Strategy Analysis* (9th ed.). Edinburgh: John Wiley and Sons.
- Henfling, I. (2019, April 1). *FAQ: What is the construction cost in Costa Rica*. Retrieved from American European: <https://www.american-european.net/costa-rica-real-estate-blog/frequently-asked-real-estate-questions/faq-what-is-the-construction-cost-in-costa-rica/>
- How Your Business Can Benefit from Value Chain Modeling*. (n.d.). Retrieved February 13, 2019, from Smartsheet: <https://www.smartsheet.com/value-chain-model>
- Idskov, N. (2013, May 17). Topkarakterer overalt til Coloplast. *Fredensborg Lokavisen*. Retrieved from <http://fredensborg.lokalavisen.dk/nyheder/2013-05-17/-Topkarakterer-overalt-til-Coloplast-1589633.html>
- Infront Analytics. (n.d.). *Levered/Unlevered Beta of Coloplast A/S (COLO.B DNK)*. Retrieved March 15, 2019, from Infront Analytics: <https://www.infrontanalytics.com/fe-en/30008SD/Coloplast-A-S/Beta>

- Ingemann, s., & Larsen, J. M. (2016, March 4). *Her er Årets Digitale vindere*. Retrieved from Dansk Markedsføring: <https://markedsforing.dk/artikler/pr-kommunikation/her-er-rets-digitale-vindere>
- International Diabetes Federation. (2017). *IDF Diabetes Atlas 8th Edition*. International Diabetes Federation.
- Investopedia. (2018, March 09). *The Pitfalls of Porter's 5 Forces*. Retrieved from Investopedia: <https://www.investopedia.com/articles/investing/103116/pitfalls-porters-5-forces.asp>
- Investopedia. (2019, January 09). *SWOT Analysis*. Retrieved from Investopedia: <https://www.investopedia.com/terms/s/swot.asp>
- Investor AB. (2017). *Annual Report 2017*. Stockholm: Investor AB.
- Investor AB. (2018). *Financial Report 2018 Q4*. Investor AB.
- Johnson & Johnson. (n.d.). *About Johnson & Johnson*. Retrieved March 26, 2019, from Johnson & Johnson: <https://www.jnj.com/about-jnj>
- Jost, T. S. (2018, August 30). *The Afoordabel Care Act under the Trump Administration*. Retrieved from The Commonwealth Fund: <https://www.commonwealthfund.org/blog/2018/affordable-care-act-under-trump-administration>
- Jurevicius, O. (2013, February 13). *PEST & PESTEL Analysis*. Retrieved from strategic management insight: <https://www.strategicmanagementinsight.com/tools/pest-pestel-analysis.html>
- Justia. (n.d.). *Search Patents*. Retrieved February 19, 2019, from Justia: <https://patents.justia.com/search?q=coloplast>
- Kenton, W. (2019, February 27). *Working Capital*. Retrieved from Investopedia: <https://www.investopedia.com/terms/w/workingcapital.asp>
- Kinetic Concepts, Inc. (2014, January 13). *Fakta om V.A.C. Therapy System*. Retrieved from KCI-medical: <https://www.kci-medical.dk/DK-DAN/faktaomvactherapysystem>
- Koller, T., Goedhart, M., & Wessel, D. (2010). *Valuation: Measuring and Managing the Value of Companies* (Fifth ed.). Hoboken, New Jersey: McKinsey & Company.
- Lane, A. (2017, October 10). *Six Factors Shaping Healthcare in Emerging Markets*. Retrieved from PharmaPhorum: <https://pharmaphorum.com/views-and-analysis/healthcare-emerging-markets/>
- Leavy, B. (2004). Outsourcing strategies: opportunities and risks. *Strategy & Leadership*, 32(6), 20-25. Retrieved from <https://www.emeraldinsight.com/doi/abs/10.1108/10878570410568875>
- Lønstrup, D. (2014, May 03). Dansk virksomhed forventer erstatningskrav på 1,5 milliarder kroner fra USA. *Politiken*. Retrieved from <https://politiken.dk/oekonomi/virksomheder/art5513833/Dansk-virksomhed-forventer-erstatningskrav-p%C3%A5-15-milliarder-kroner-fra-USA>
- Makin, G. B., Breen, D. J., & Monson, J. R. (2001). The Impact of New Technology on Surgery for Colorectal Cancer. *World Journal of Gastroenterology*, 612-621.

- MarketLine. (2018). *Coloplast A/S*. MarketLine.
- MarketLine. (2018). *Company profile: C. R. Bard, Inc.* MarketLine.
- MarketWatch. (n.d.). *XColoplast A/S Series B*. Retrieved March 15, 2019, from MarketWatch: <https://www.marketwatch.com/investing/stock/colob?countrycode=dk>
- McKinsey. (2008, March). *Enduring Ideas: The 7-S Framework*. Retrieved from McKinsey & Company: <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/enduring-ideas-the-7-s-framework>
- Minasyan, V. (2013). Investigation of Iterative Algorithms For Evaluation of Capital Structure and Cost. *International Journal of Advanced Multidisciplinary Research and Review*, 1(1), 50-76.
- MindTools. (2018). *PEST Analysis - Identifying the "Big Picture" Opportunities and Threats*. Retrieved January 8, 2019, from MindTools: https://www.mindtools.com/pages/article/newTMC_09.htm
- MindTools. (n.d.). *SWOT Analysis*. Retrieved January 10, 2019, from MindTools: https://www.mindtools.com/pages/article/newTMC_05.htm
- Mölnlycke. (2017). *Annual Report 2017*. Göteborg: Mölnlycke AB.
- Moore, E. A. (2015, November 26). *How can we improve access to healthcare in emerging countries?* Retrieved from World Economic Forum: <https://www.weforum.org/agenda/2015/11/how-can-we-improve-access-to-healthcare-in-emerging-countries/>
- Mortensen, H. N. (2014, November 29). *Coloplast er først med vævet tekstil-stomipose*. Retrieved from Ingeniøren: <https://ing.dk/artikel/coloplast-foerst-med-vaevet-tekstil-stomipose-172561>
- MSN. (n.d.). *Coloplast A/S*. Retrieved March 15, 2019, from MSN Finans: <https://www.msn.com/da-dk/finans/aktieoplysninger/fi-adzcar>
- Mussa, M. (1979). Empirical regularities in the behavior of exchange rates and theories of the foreign exchange market. *Carnegie-Rochester Conference Series on Public Policy*, 11, 9-57.
- NeuralIT. (n.d.). *TVM (Transvaginal Mesh)*. Retrieved January 24, 2019, from NeuralIT: <https://www.neuralit.com/mass-torts/devices/tvm-transvaginal-mesh>
- Nordic Capital. (2016, October 26). *ConvaTec successfully listed on the London Stock Exchange*. Retrieved from Nordic Capital: <https://www.nordiccapital.com/news/convatec-successfully-listed-on-the-london-stock-exchange/>
- Obama, B. (2016, August 2). United States Health Care Reform Progress to Date and Next Steps. *Jama*, 525-532. Retrieved from National Center for Biotechnology Information: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5069435/>
- OECD. (n.d.). *Average Wages*. Retrieved February 24, 2019, from Organisation for Economic Co-operation and Development: <https://data.oecd.org/earnwage/average-wages.htm#indicator-chart>

- OECD. (n.d.). *Real GDP Forecast*. Retrieved May 10, 2019, from OECD: <https://data.oecd.org/gdp/real-gdp-forecast.htm#indicator-chart>
- Olsen, P. B., & Pedersen, K. (2005). Social Science Theory in Project Work and the Project Report. In P. B. Olsen, & K. Pedersen, *Problem-oriented project work* (pp. 123-148). Roskilde: Roskilde University Press.
- Owler. (n.d.). *Hollister's Competitors, Revenue, Number of Employees, funding and Acquisitions*. Retrieved February 15, 2019, from Owler: <https://www.owler.com/company/hollister>
- Owler. (n.d.). *Hollister's Competitors, Revenue, Number of Employees, Funding and Acquisitions*. Retrieved March 26, 2019, from Owler: o new patent for their catheter. Coloplast believes it infringes on their patent for their SpeediCath Flex catheter. While Coloplast has lost the case and has to pay DKK 1 million to cover litigation costs, Hollister Inc. claims the case to be worth DKK 3
- PatientView Ltd. (2017, October 23). '*Corporate Reputation of Medical-Device Industry in 2017 - the Patient Perspective*', 6th edition. Retrieved from PatientView: <http://createsend.com/t/j-E1282E111AA6DC462540EF23F30FEDED>
- Pauwels, P., & Matthyssens, P. (2005). The Architecture of Multiple Case Study Research in International Business. In R. Marschan-Piekkari, & C. Welch, *Handbook of Qualitative Research Methods for International Business* (pp. 125-141). Edward Elgar Pub.
- Petersen, C. V., & Plenborg, T. (2012). Chapter 4: The analytical income statement and balance sheet. In C. V. Petersen, & T. Plenborg, *Financial statement analysis* (pp. 68-92). Edinburgh: Pearson Education Limited.
- Petersen, C. V., & Plenborg, T. (2012). Cost of Capital. In C. V. Petersen, & T. Plenborg, *Financial statement Analysis* (pp. 245-270). Edinburgh: Pearson.
- Petersen, C. V., & Plenborg, T. (2012). Credit analysis. In C. V. Petersen, & T. Plenborg, *Financial Statement Analysis* (pp. 271-298). Edinburgh: Pearson.
- Petersen, C. V., & Plenborg, T. (2012). Forecasting. In C. V. Petersen, & T. Plenborg, *Financial Statement Analysis* (pp. 174-207). Edingburgh: Pearson.
- Petersen, C. V., & Plenborg, T. (2012). Forecasting. In C. V. Petersen, & T. Plenborg, *Financial statement Analysis* (pp. 174-207). Edinburgh: Pearson.
- Petersen, C. V., & Plenborg, T. (2012). Growth Analysis. In C. V. Petersen, & T. Plenborg, *Financial Statement Analysis* (pp. 127-149). Edingburgh: Pearson.
- Petersen, C. V., & Plenborg, T. (2012). Profitability Analysis. In C. V. Petersen, & T. Plenborg, *Financial statement Analysis* (pp. 93-126). Edinburgh: Pearson Education Limited.
- Petersen, C. V., & Plenborg, T. (2012). Valuation. In C. V. Petersen, & T. Plenborg, *Financial statement analysis* (pp. 208-244). Edinburgh: Pearson.
- Petersen, M. H. (2013, February 01). ObamaCare tvinger coloplast-rival til fyringer. *MedWatch*. Retrieved from https://medwatch.dk/Medico___Rehab/article5126867.ece

- Porter, M. E. (1980). Appendix B: How to Conduct an Industry analysis. In M. E. Porter, *Competitive Strategy* (pp. 368-382). The Free Press.
- Porter, M. E. (1985). *Competitive Advantage*. New York: The Free Press.
- Porter, M. E. (1985). *Competitive Advantage*. New York : The Free Press.
- Porter, M. E. (2008). The Five Competitive Forces That Shape Strategy. *Harvard Business Review*, 25-40.
- Pyndth, J., & Pedersen, T. (2006). *Managing Global Offshoring Strategies*. Copenhagen: Copengahen Business School Press.
- Rasmussen, L. (2016). *Group Strategy Update*. Humlebæk: Coloplast A/S.
- Region Hovedstaden. (n.d.). *Standardbetingelser for køb under 500.000*. Retrieved February 11, 2019, from Region Hovedstaden: <https://www.regionh.dk/til-fagfolk/Om-Region-H/Indk%C3%B8b-og-udbud/udbud/Sider/Standardbetingelser-for-k%C3%B8b.aspx>
- Reuters. (n.d.). *Coloplast A/S (Colob.CO)*. Retrieved March 15, 2019, from Reuters: <https://www.reuters.com/finance/stocks/financial-highlights/COLOb.CO>
- Ritzau. (2018, November 05). Coloplast taber patentsag til amerikansk rival. *Fredericia Dagblad*. Retrieved from <https://frdb.dk/112/Coloplast-taber-patentsag-til-amerikansk-rival/artikel/213433>
- Ritzau Finans. (2014, April 14). Seks C20'ere er ekstremt solide. *Børsen*. Retrieved from https://borsen.dk/nyheder/virksomheder/artikel/1/280916/seks_c20ere_er_ekstremt_solide.html
- Ritzau Finans. (2018, September 20). *Coloplast/dir: Ingen fast tidshorisont for fordoblingsmål i sårpleje*. Retrieved from Euroinvestor: <https://www.euroinvestor.dk/nyheder/2018/09/20/coloplast-dir-ingen-fast-tidshorisont-for-fordoblingsmaal-i-saarpleje/13896731>
- Ritzau Finans. (2018, September 24). Før Markedet Åbner: Mærsk og Coloplast i Fokus Midt i Handelskonflikt. *Børsen*. Retrieved from https://penge.borsen.dk/artikel/1/369430/foer_markedet_aabner_maersk_og_coloplast_i_fokus_midt_i_handelskonflikt.html
- Ritzau Finans. (2019, February 05). *Coloplast/CEO: Er parate til sårplejeopkøb hvis mulighe...* Retrieved from Sydinvest: <https://www.sydinvest.dk/nyheder/coloplast/ceo-er-parate-til-s%C3%A5rplejeopk%C3%B8b-hvis-mulighede-46-46-46.aspx?Action=1&PID=9258>
- Saabye, N. (2003). *Risikopræmien på aktier*. Nationalbanken. Retrieved from http://www.nationalbanken.dk/da/publikationer/Documents/2003/02/2003_KVO1_ris73.pdf
- Sand, P. K. (2019, January 25). Mona og 124 andre får hjælp af deres arbejdsplads til at finde nyt job. *TV2 Nord*. Retrieved from <https://www.tv2nord.dk/artikel/partner/tv-midtvest/mona-og-124-andre-faar-hjaelp-af-deres-arbejdsplads-til-finde-nyt-job>
- Santander. (2019, January). *Saudi Arabia: Economic and Political Outline*. Retrieved from SantanderTrade: <https://en.portal.santandertrade.com/analyse-markets/saudi-arabia/economic-political-outline>

- SKAT. (2019). *Den juridiske vejledning 2019-1*. Retrieved from SKAT:
<https://skat.dk/skat.aspx?oid=2168585&chk=215961>
- Skovgaard, A. L., & Rasmussen, A. (2017). *Finance and Global Operations*. Humlebæk: Coloplast A/S.
- Smith & Nephew. (2014). *Annual Report 2014*. Smith & Nephew.
- Smith & Nephew. (2015). *Annual Report 2015*. Smith & Nephew.
- Smith & Nephew. (2016). *Annual Report 2016*. Smith & Nephew.
- Smith & Nephew. (2017). *Annual Report 2017*. Smith & Nephew.
- Smith & Nephew. (2018). *Annual Report 2018*. Smith & Nephew.
- Smith & Nephew. (n.d.). *At a Glance*. Retrieved March 26, 2019, from Smith & Nephew: <http://www.smith-nephew.com/about-us/who-we-are/at-a-glance/>
- Sørensen, O. (2012). *Regnskabsanalyse af værdiansættelse - en praktisk tilgang*. Gjellerup.
- Sparrow, N. (2016, January 05). *Medtech company Coloplast to pay \$3 million in kickback lawsuit*. Retrieved from PlasticToday: <https://www.plasticstoday.com/medical/medtech-company-coloplast-pay-3-million-kickback-lawsuit/19536020623926>
- Svarre, S. (2013). *Coloplast - Building brand equity and creating new leads with a pioneering app*. Retrieved May 14, 2019, from Advance: <http://www.advance.dk/cases/coloplast/>
- The Global Cancer Observatory. (2018). *Cancer Tomorrow*. Retrieved February 06, 2019, from International Agency for Research on Cancer - World Health Organization: <http://gco.iarc.fr/tomorrow/home>
- The Global Cancer Observatory. (2018). *Population Fact Sheet - World*. International Agency for research on cancer - World Health Organization.
- Thomson One Banker. (n.d.). *Coloplast - Company Forecast All Measures*. Retrieved April 25, 2019, from Thomson One Banker:
<https://www.thomsonone.com/Workspace/Main.aspx?View=Action%3dOpen&BrandName=www.thomsonone.com&IsSsoLogin=True>
- Total Home Care Supplies. (n.d.). *coloplast Ostomy Products*. Retrieved February 25, 2019, from Total Home Care Supplies:
http://www.totalhomecaresupplies.com/CategoryDetail.aspx?CategoryName=_z%20Brand%20Coloplast
- UBS. (2018). *ConvaTec Group Plc - Further Earnings Risk. Downgrade to Neutral*. UBS.
- United Nations. (2017). *World Population Prospects - The 2017 Revision*. New York: United Nations.
- UPS. (n.d.). *Ekstragebyr på brændstof*. Retrieved February 01, 2019, from UPS:
<https://www.ups.com/dk/da/shipping/surcharges/fuel-surcharges.page>

URGO Group. (n.d.). *URGO at a Glance*. Retrieved March 26, 2019, from URGO: <https://www.urgo-group.com/group/urgo-group/urgo-at-a-glance/>

Vachani, C. (2003, January 19). *Do you need a colostomy for colon cancer?* Retrieved from OncoLink: <https://www.oncolink.org/frequently-asked-questions/cancers/gastrointestinal/colorectal-cancer/do-you-need-a-colostomy-for-colon-cancer>

Various Coloplast Employees. (n.d.). *Coloplast Employee Reviews*. Retrieved February 20, 2019, from Indeed.com: <https://www.indeed.com/cmp/Coloplast/reviews?fcountry=ALL>

Varma, M. (2018). *Chronic Care North America update*. Humlebæk: Coloplast A/S.

Veome, E. (2016). *Coloplast North America*. Humlebæk: Coloplast A/S.

Villumsen, K. (2018). *Emerging market update*. Humlebæk: Coloplast, A/S.

Villumsen, K. (2018). *Introduction to Region Europe Chronic Care*. Humlebæk: Coloplast A/S.

Wang, D. S. (2018). *Coloplast Delivers Another Solid Quarter, But Shares React to CEO's Retirement News*. Morningstar Inc.

Wellspect. (n.d.). *About Wellspect*. Retrieved March 26, 2019, from Wellspect: <https://www.wellspect.com/about>

Wound Source. (2010, July 15). *Healthcare Expert Kimberly Herman Promoted to President, Coloplast Corp*. Retrieved from Wound Source: <https://www.woundsource.com/news/healthcare-expert-kimberly-herman-promoted-president-coloplast-corp#comment-0>

Yahoo. (n.d.). *Coloplast A/S (COLO-B.CO)*. Retrieved March 15, 2019, from Yahoo Finance: <https://finance.yahoo.com/quote/COLO-B.CO/>